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ANNUAL REPORT

CLIMATE CHANGE RESILIENT DEVELOPMENT

ANNUAL IMPLEMENTATION REPORT

FISCAL YEAR 2014




October 17, 2014

This report was produced for review by the United States Agency for International Development (USAID). It was prepared by Engility Corporation/IRG.

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OCOTBER 2013 TO SEPTEMBER 2014

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ACRONYMS

ADN	Santo Domingo National District (Ayuntamiento del Distrito Nacional)
AgMIP	Agricultural Model Intercomparison and Improvement Project
ALM	Adaptation Learning Mechanism (website)
CariCOF	Caribbean Regional Climate Outlook Forum
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CCAP	Coastal Cities Adaptation Project
CCRD	Climate Change Resilient Development Task Order
CCSR	Columbia's Center for Climate Systems Research
CDM	Cruz de Mayo
CDWG	Communications Dissemination Working Group
CFGORRP	Community Based Flood and Glacial Lake Outburst Risk Reduction Project
CGIAR	Consultative Group on International Agricultural Research
CIMH	Caribbean Institute of Meteorology and Hydrology
CIMPACT-DST™	Climate Impacts Decision Support Tool
CoP	Community of Practice
COP	UNFCCC Conference of the Parties
CPT	Climate Predictability Tool
CRD	Climate Resilient Development
CRIS	Climate Resilient Infrastructure Services Program
CRLED	Climate-resilient low-emission development
CRLEDS	Climate Resilient and Low Emission Development Strategies
CRM	Climate Risk Management
CRW	Climate Resilient Wheat
CSP	Climate Services Partnership
CVACC	Climate Vulnerability Assessment for Coastal Cities
DBMS	Database Management System
DEM	Digital elevation model
DFID	Department for International Development (United Kingdom)
DHM	Department of Hydrology and Meteorology (Nepal)

DNPWC	Department of National Parks and Wildlife Conservation (Nepal)
ECOWAS	Economic Community of West African States
Engility-IRG	International Resources Group/Engility
FES	Foundation for Ecological Security
FTI	Fast-Track Implementation
FY	Fiscal Year
GCC	Global Climate Change
GCMs	Global climate models
GEF	Global Environment Facility
GFCS	Global Framework for Climate Services
GGCMI	(AgMIP) Global Gridded Crop Model Intercomparison
GIS	Geographical Information System
GLOF	Glacial Lake Outburst Flood
GON	Government of Nepal
GPR	Ground penetrating radar studies
GTPA	Groupe de Travail Pluridisciplinaire d'Assistance Agrométéorologique
GUC	Grants Under Contract
HiMAP	High Mountain Adaptation Partnership
HPI	Hue Planning Institute
ICC	Institute for Climate Change research (Guatemala)
ICCS2	Second International Conference on Climate Services
ICCS3	Third International Conference on Climate Services
ICF	ICF Incorporated, LLC
ICIMOD	International Centre for Integrated Mountain Development
ICT	Information and Communication Technology
IDB	Inter-American Development Bank
IDDI	Instituto Dominicano de Desarrollo Integral
IEDRO	International Environmental Data Rescue Organization
IMHEN	Institute for Meteorology, Hydrology, and Environment (Vietnam)
IMN	Honduras Meteorological Services
INGC	National Institute of Disaster Management (Mozambique)
INSIVUMEH	The National Institute for Seismology, Vulcanology, Meteorology and Hydrology of Guatemala
INTEC	Instituto Tecnológico de Santo Domingo
IPCC	Intergovernmental Panel on Climate Change

IQC	Indefinite Quantities Contract
IRAP	International Research Institute for Climate and Society
IRD	Research Institute for Development (Peru)
IRI	International Research Institute for Climate and Society
ISC	Institute for Sustainable Communities
JMS	Jamaica Met Service
KACC	Khumbu Alpine Conservation Council
KM	Knowledge management
LAPA	Local Adaptation Plan for Action
LDCs	Least Developed Countries
LEG	Expert Group
LIG	Livelihoods as Intimate Government
M&E	Monitoring and evaluation
MINAM	Ministry of Environment of Peru
MKM	Milieukontakt Macedonia
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NAP	National Adaptation Plan
NGO	Non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
NSI	National Space Institute
NTNC	National Trust for Nature Conservation
ONAMET	National Office on Meteorology
PEAR	Post Event Assessment of Resilience
phpBB	PHP Bulletin Board
PMP	Performance Management Plan
POC	point of contact
pSIMS	parallel System for Integrating Impacts Models and Sectors
Q2	Quarter Two
SAC	Senior Advisory Committee
SNP	Sagarmatha National Park
SOW	Scope of work
SUNY	State University of New York
TA	Technical assistance
TDY	Temporary Duty

TERI	The Energy and Resources Institute
TMA	Tanzania Meteorology Agency
TMI	The Mountain Institute
TOT	Training-of-Trainers
UA	University of Arizona
UCAR	University Corporation for Atmospheric Research
UNC	University of North Carolina at Chapel Hill
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSRAT	Sam Ratulangi University
USAID	United States Agency for International Development
USDA	US Department of Agriculture
USG	U.S. Government
UTA	University of Texas at Austin
UWI	University of West Indies
V&A	Vulnerability and Adaptation
VDC	Village Development Committee
VIUP	Vietnam Institute for Urban-Rural Planning
Water II IQC	Integrated Water and Coastal Resources Management Indefinite Quantities Contract
WEDC	Water, Engineering, and Development Centre
WG	Working Group
WIO	Western Indian Ocean
WIOMSA	Western Indian Ocean Marine Science Association
WVU	West Virginia University
WMO	World Meteorological Organization
YKK	Yayasan Kota Kita
YMCI	Yayasan Mercy Corps Indonesia

A. INTRODUCTION

This report summarizes the activities undertaken by the consortium led by International Resources Group (Engility-IRG) during the annual reporting period of October 2013 – September 2014, under the Integrated Water and Coastal Resources Management Indefinite Quantities Contract (Water II IQC) Climate Change Resilient Development (CCRD) Task Order. The report covers project management and implementation activities undertaken and/or completed during the reporting period. The CCRD Performance Management Plan (PMP) report, current CCRD organizational chart, and annual financial report are provided as Annexes. The remaining sections are divided into four sections: 1) Project Management; 2) Objective One activities; 3) Objective Two activities; and 4) Objective Three activities.

The report includes updates on activities and tasks described in the CCRD Year Three Work Plan:

Project Management, Planning, and Evaluation:

Task PM-4 Conduct Advisory Committee Meetings

Task PM-6 Develop and Disseminate CCRD Knowledge Management (KM) Products

Task PM-7 Implement Grants Under Contract Program

Objective 1: Support for USAID Missions and Bureaus

Task 1.1.1 Revise Vulnerability and Adaptation Manual

Task 1.1.2 Develop Climate Briefs and Annexes

Task 1.1.5 New Directions in Pilots and Research

Task 1.2.3 Support the United Nations Development Programme (UNDP) Adaptation Learning Mechanism Website

Task 1.3.3 Support Development of USAID's Federal Agency Climate Change Adaptation Plan

Task 1.3.4 Provide support for USAID Integration Pilot in Kazakhstan

Objective 2: Coordinate with Other U.S. Government (USG) Agencies to Support Mainstreaming

Task 2.1.1 Conduct Adaptation Partnership Workshops

Objective 3: Identify and Respond to Emerging Issues and Fill Gaps

Task 3.1.1 Support Preparation of National Adaptation Plans (NAPs)

Task 3.1.2 Develop and Pilot Fast Track Implementation Concept

Task 3.2.2 Develop the High Mountain Adaptation Partnership's (HiMAP) Community of Practice (CoP)

Task 3.2.4 Implement CoP Pilot Projects and Research

Task 3.3.2 Coordinate Activities of the Climate Services Partnership

Task 3.3.3 Compile and Disseminate Current Climate Services Knowledge

Task 3.3.4 Conduct Case Studies and Assessments of Climate Services

Task 3.3.5 Economic Valuation of Climate Services

Task 3.3.7 National/Regional-level Climate Services Development

Task 3.3.8 Develop Climate Services Products for the Agriculture Sector

Task 3.3.10 International Research Institute for Climate and Society (IRAP)

Task 3.4.1 Identification of Pilot Cities

Task 3.4.2 Climate Resilient Infrastructure Services Program (CRIS) Support to Pilot Cities to Accelerate Climate Risk Management

Task 3.4.4 Global City-to-City Information Exchange

TASK 3.4.5 Provide Information and Technical Resources to USAID Staff

Task 3.4.6 Evaluate CRIS Activities and Recommend Next Steps

Task 3.4.7 Cascadia Vietnam Pilot

This report and all reports and presentations drafted and/or finalized during Fiscal Year (FY) 2014 are provided to USAID through the internal site: www.ccrdproject.com.

B. PROJECT MANAGEMENT, PLANNING, AND EVALUATION

Project management activities during FY14 focused on developing Climate Change Resilient Development (CCRD) communications materials and issuing and monitoring small grants awards.

TASK PM-4 CONDUCT ADVISORY COMMITTEE MEETINGS

The Senior Advisory Committee (SAC) met on October 2-3, 2013, to discuss ongoing CCRD activities and communications. The first day was devoted to programmatic updates, discussions on CCRD white papers and next steps, and updates on current and potential National Adaptation Plan (NAP) activities, Climate Resilient Infrastructure Services Program (CRIS) grants and pilots, the Kazakhstan Climate Resilient Wheat project, and Climate Services. The second day focused on the status of CCRD deliverables, communications, and dissemination. Target audiences, key messages, communication products, communications channels, and dissemination strategies for CCRD were identified and prioritized.

The Senior Advisory Committee met again on May 8 and 9 at Engility to discuss priorities for the Year Four Work Plan. The meeting kicked off with a review of Year Three progress on major CCRD programs and anticipated deliverables to be completed by the program year. A short update on communications progress was also provided to the SAC and USAID.

By the afternoon of day one discussion had shifted to Year Four Work Plan priorities. On the second day, the SAC focused on how we plan to roll out synthetic products and lessons learned for a variety of audiences and media. This was the last SAC meeting of the CCRD project.

TASK PM-6 DEVELOP AND DISSEMINATE CCRD KNOWLEDGE MANAGEMENT PRODUCTS

In FY14, the Communications Team focused on implementing the *Communications Framework, CCRD Year 4 Dissemination and Outreach* plan adopted during the CCRD Strategic Advisory Committee Meeting May 8-9, 2014. The plan encompasses CCRD communication goals and objectives, audiences, dissemination, communication products, and activities including a deliverable distribution strategy. The CCRD Communications Team is managed by Engility's Senior Climate Adaptation Specialist Michael Cote with support from CCRD Intern Paola Eisner and CCRD Communications Consultant Jamie Carson, and includes key staff from USAID, IRG, Stratus Consulting, ICF, The Mountain Institute (TMI), and International Research Institute for Climate and Society (IRI). The team comprises writers, reviewers, researchers, and technical specialists, all with climate change adaptation specific backgrounds.

Primary communications activities included editing, formatting, and finalizing deliverables; creation of tailored distribution plans for the Climate Resilient Development (CRD) Framework, guidance annexes, and gender assessment reports; planning for the CCRD Roadmap with Stratus Consulting; assisting the Chief of Party with a socio-economic benefits study book for meteorological/hydrological services in

partnership with World Meteorological Organization (WMO) and World Bank; and edited and formatted technical reports on the Kazakhstan Climate Resilient Development project.

The team set a preliminary agenda for CCRD Climate Week Planned for spring 2015 in Washington, D.C. The symposium of events will feature climate-resilient development projects implemented under CCRD. Venues include the Carnegie Endowment for International Peace, National Geographic, Urban Institute, and Wilson Center. Event logistics and other information will be housed for participants of CCRD Climate Week on a dedicated webpage of the main project management site www.ccrdproject.com.

The team worked with Cascadia Consulting on formatting, editing, and disseminating technical reports on the Climate Impacts Decision Support Tool (CIMPACT-DST). In July 2014, Cascadia utilized the project management website to manage a workshop held in Vietnam (http://www.ccrdproject.com/adaptation-partnership/cris/vietnam-climate-impacts-planning-tool-workshop).

Several strategic communications activities were conducted for the National Adaptation Working Group. Mr. Cote and Brad Hurley (ICF) developed a 20-page compendium showcasing USAID's National Adaptation Plan processes. The compendium describes USAID's NAPs workshop processes utilized to mainstream climate information into national level development planning in Jamaica, Tanzania, and West Africa. The aim of the compendium is to assist USAID and Department of State staff and missions learn about and potentially duplicate the processes developed under CCRD. The compendium also serves to influence the nascent NAPs approaches formulated by the United Nations Framework Convention on Climate Change (UNFCCC). In addition, the document supported an official memo on NAPs that was delivered by the Department of State (in collaboration with USAID) to focal points at the UNFCCC. Twenty draft-copies of the booklet were delivered to relevant audiences by Joel Smith (Stratus) at meetings in Tanzania. The document includes technical introduction, updated graphics, incorporates new feedback from USAID/GCC staff, and formatted into the CCRD "tab" style.

The communications project management and product dissemination website was updated and populated throughout FY14 (http://www.ccrdproject.com/). This included adding the CCRD Library, an aggregator with subpages dedicated to themed deliverables — Technical Reports, Workshop Summaries, White Papers, Fact Sheets, Annual Reports, and Other Documents. A Team Page was also added to the project management website.

TASK PM-7 IMPLEMENT GRANTS UNDER CONTRACT PROGRAM

CLIMBER-SCIENTIST SMALL GRANTS

Adam French (University of California, Santa Cruz): Dr. French worked with Peruvian partners to coordinate a field excursion for members of the Cruz de Mayo Campesino Community (CDM) to discuss the effects of mining and climate change on watershed health and community development. Dr. French and project partner César Portocarrero (agua.edu) visited the Huancutey sector of CDM to discuss water availability and hydrologic change and to speak with local irrigators about their efforts to improve irrigation infrastructure and efficiency. Dr. French also leveraged community buy-in to arrange the donation of a laptop computer and multi-media projector to CDM.

ATREE USA: The ATREE team conducted trainings on improved cook stove construction and maintenance and established the Eastern Himalayan Climate Forum to increase collaboration between ATREE and other local NGOs. ATREE also completed shooting and preliminary edits on a documentary video about agriculture in Eastern Himalaya, *Climate Change in the Eastern Himalaya: Ancient*

Risks, Future Threats. ATREE staff presented their work at the Forest Research Institute of India, the CHED-IRC conference "Science, History and Religion," and at the International Society for Ecological Economics 2014 conference "Wellbeing and equity within planetary boundaries."

The Research Foundation for the State University of New York (SUNY): SUNY is completing the modeling synthesis of western Mongolia rangeland conditions, and analysis and communication. Remote sensing reconnaissance is being supplemented by ongoing assessments of western Mongolian grazing system and herder population vulnerability to climate change. SUNY continues research on deliverables that include a historical analysis of grassland conditions over the last 12 years, projections of likely future conditions of rangeland quality and wildlife distribution based on climate sensitive models, communication avenues tailored to a traditional herder audience, and a guidance document on regional ecotourism development.

Three new tools have been finalized, including an approach to integrating remote sensing data with stakeholder assessments and wildlife survey data to project biodiversity and human migration in rangeland situations, a tool to detect trends in remote-sensed rangeland conditions with highly seasonal patterns of variability, a system for integrating traditional ecological knowledge with rangeland assessments based on western science methods, and a field-based method for detailed validation of satellite-derived estimates of ground-level estimates of rangeland quality.

SUNY is also developing a proposal to NASA to facilitate climate change adaptation in greater Altai Mountain region.

ACADEMIC SMALL GRANTS PROGRAM

University of Michigan

To date, the University of Michigan research team and their NGO partner in India – the Foundation for Ecological Security (FES) – launched the baseline data collection for their CCRD research study in the States of Andra Pradesh and Rajasthan, India. In preparation for the baseline launch, the household survey was translated into Hindi and Telegu, the survey was programmed into Open Dat Kit for the electronic platform, a website was established to house the data collection, and Android tablets were procured to facilitate the mobile data collection. FES conducted trainings with survey enumerators on the content of the survey instrument and mobile data collection. In addition, an investigator from the Michigan team conducted a site visit in Rajasthan to train the supervisors and pilot test the household instrument. Following the pilot test, the team verified that the electronic platform captured the data properly, finalized the household survey, and developed the final list of treatment and control villages.

Red Cross Red Crescent Climate Centre

The previous month focused on data analysis. Using qualitative data analysis software (MAXQDA) and the existing coding framework, the research team identified interrelated patterns related to people's vulnerabilities, livelihoods, demographics, and perceptions. The analytical framework followed he Livelihoods as Intimate Government (LIG) approach implemented in fieldwork. The analysis relied upon 417 unique coding categories and subcategories; categories of coding include, but are not limited to, the vulnerability context, discourses of livelihoods, and tools of coercion. Refinement of the results is ongoing. A research team member presented preliminary results at a workshop and high-level meeting in Lusaka (Dr. Ed Carr of SEE Group). These meetings, hosted by the Zambian Red Cross and the Red Cross Red Crescent Climate Centre, brought together stakeholders from government and NGOs to prioritize adaptation activities for Zambia. Findings are being further analyzed to see how decision-making translates to hazard vulnerability. The end goal is to extract a detailed understanding of current and projected vulnerability to climate change, specific risks to different groups of people within the community, and likely efficacy of potential adaptation efforts. To this end, SEE Group is working with the Zambian Red Cross to better understand how the findings of fieldwork impact the activities of the Red Cross, including disaster risk reduction, disaster response planning, and disaster response activities.

RMIT University: In FY14, the grantee collaborated with two Pacific port authorities in Fiji and Papua New Guinea, as well as various climate data providers, to finalize a decision-support toolkit for Climate Smart Pacific Seaports. Building on a prototype from the Australian context, the toolkit was enhanced and tailored for use in Fiji and Papua New Guinea through a series of in-country stakeholder workshops with seaport authorities and key local experts. A second round of workshops was then used to train port staff on the toolkit, to test the usability of the different assessment tools, and to promote the resource as a mechanism for internal learning and capacity building. The toolkit not only provides the necessary climate data, guidance for decision-making, and assessment tools, but also catalyzes knowledge exchange and shared learning between port staff and other relevant actors, such as engineers and occupational health and safety officials, who perceive and address risk differently. Toolkit users also learned to produce climate risk reports to inform adaptation planning, a valuable outcome for improved decision-making by Pacific port authorities.

University of Colorado Boulder
The project team has completed data collection at national and village scales in Tanzania, including 30 semi-structured interviews and 11 focus groups. The team has also conducted unstructured and structured ethnographic data collection through field stays (over two months) at the village scale in Monduli and Longido districts and through attendance of 10 national and sub-national meetings related to climate change adaptation and climate services in Tanzania. The team has completed initial phases of data analysis, applying the knowledge system criteria (credibility, salience, and legitimacy) to identify entry points for engaging in dialogue for incorporation of climate knowledge within adaptation decision-making across institutional scales in Tanzania. The team has conducted two village-scale feedback meetings, with a total of 75 attendees, and has presented preliminary findings at two academic conferences. The team has also developed protocols for quantitative surveys, focus group discussions, and semi-structured interviews as part of a methodological package to assess production, access, and use of climate knowledge across institutional scales. Initial data analysis of surveys and focus group discussions has been conducted and results have been compiled into a six-page report.

University of North Carolina at Chapel Hill (UNC): For CCRD Year Three, UNC completed fieldwork in the Philippines and Vietnam, validated the adaptive capacity components in the vulnerability model, and hosted a workshop at the Water, Engineering, and Development Centre (WEDC) conference in Hanoi, Vietnam. During the fieldwork, we conducted interviews with representatives from government agencies related to climate change and water supply and with representatives from water utilities. Our interviews took place in the capital cities of the Philippines and Vietnam as well as in coastal provinces of the countries for a total of 22 interviews. These interviews allowed for an assessment of the climate hazard mitigation situation at the national levels as well as at provincial levels.

In assessing the vulnerability of a system, the ability of the system to cope with hazards is an important aspect of vulnerability. This ability is called the adaptive capacity. Indicators for adaptive capacity have been proposed in different articles, but these indicators needed to be validated because they may change depending on the context in which they are applied. Using information from the interviews, indicators for adaptive capacity were validated to give credibility to the assessment model being developed. Fifteen people attended the workshop. At the workshop, UNC presented preliminary results from the project and introduced the vulnerability model to participants. UNC also showed participants how to use the model in practice and highlighted the benefits of the model. In an attempt to promote discussion during the workshop, UNC planned breakout sessions which were useful in further validating our model and ensuring the model UNC was developing would be useful for water suppliers and organizations involved in climate and water activities.

West Virginia University: WVU held a few workshops in this reporting period as follows: (1) One-day climate change adaptation workshop in Caraz, Peru with 30 participants – mainly local stakeholders and

Huascaran National Park staff; (2) One-day climate change adaptation workshop in Hualcayan, Peru, with 50 participants – all local villagers – and presentations at a local school; (3) One-day climate change adaptation workshop in Huaraz, Peru, with nearly 100 participants – primarily Peruvian university students, Huascaran National Park staff, and Peruvian government agency personnel, conservation organizations, local businesses, mountain guides, and students from about 12 different universities; (4) One-day workshop on glacier retreat and water impacts in Huaraz, Peru, with nearly 60 participants – primarily local stakeholders, Peruvian university students, Huascaran National Park staff, and Peruvian government agency personnel.

WVU finished completed the following activities in this quarter: (1) Training of seven Peruvian students on interview techniques and climate change adaptation procedures; (2) In-depth interviews with 112 local villagers on resource extraction and climate change in 14 different villages scattered throughout the Huascaran National Park buffer zone; (3) Completion of a Water Quality Sampling Plan for the Cordillera Blanca; (4) Training of nine Peruvian students and two National Park staff in water quality sampling procedures; (5) Evaluation of five valleys for grazing intensity and land use to link with local interviews; (6) Training of five Peruvian students in grazing evaluation methodology; (7) Building 12 grazing enclosures and assistance in the construction of another 20; (8) Meetings and workshops with the local grazing associations (about 150 families) to demonstrate the use of grazing enclosures and ensure local buy-in for the project; (9) Direct training of 12 grazing association members in building, maintaining, and monitoring grazing enclosures in coming years; (10) Training of eight Peruvian students in vegetation and soil analysis in the cattle enclosures. They will monitor and report to the local cattle association members; (11) Establishment of protected sites for endangered *Polylepis* forest regeneration and study.

Pan American School of Agriculture, also known as Zamorano (University): Research activities were planned for the experimental watershed and preliminary setup begun. Monitoring equipment has been installed and surveys have been conducted to design weirs for stream flow measurements. In addition, Zamorano has planned a research initiative at the team's experimental watershed to predict production of basic grain crops (beans) based on seasonal rainfall and temperature forecasts in coordination with the International Research institute for Climate and Society and the Honduras Meteorological Services (IMN). Plots have been planted and are currently being monitored. In the upcoming months, research activities will continue and a crop model will be calibrated.

The team has developed an online training course on Water, Climate, and Development. Materials are being translated into interactive learning objects, a training program will begin in late August, and recruitment of potential candidates will begin during July.

The team continued to work providing training and technical assistance to community members located within their experimental watershed in Santa Inés and Santa Rosa. Promotion of agricultural adaptation practices has continued, and demonstrative plots have been established.

SOLE SOURCE SMALL GRANTS

International Environmental Data Rescue Organization (IEDRO): IEDRO continued to research ways to speed up the ACMAD scanning process. In spite of many file naming modifications and process procedures implemented at Mr. Stanton's direction, ACMAD has scanned about 30,000 images thus far which is less than 10 percent of what had been projected. We have already determined the slow rate is due to lack of scanning personnel.

IEDRO has been since notified that ACMAD is hiring four to six new personnel to operate the scanning systems and are being trained. New scanning technicians began training on September 3 on the inventory of microfiche, and from September 4 through 17 were trained in the establishment of the tables for Benin, Burkina Faso, Cameroon, Central African Republic, Gambia, Ivory Coast, Mali, Niger, and

Senegal. Beginning September 23, regular scanning was resumed at a much greater pace than previously achieved in the previous 14 months with nearly 5,200 images received in the third week of September alone.

IEDRO continues to actively work with Summit Business Technologies, Inc. (formerly Light Industries, Inc.) to develop a crowd-sourcing program called "Weather Wizards" for all the ACMAD scanned microfiched data. Additionally, the Weather Wizards system will handle analog hydro meteorological charts such as barograms, the programs, and precipitation charts which, although not being part of the microfiche images currently being scanned by ACMAD, will support their future activities within their West Africa Climate Data Rescue and Digitization Facility.

The Mountain Institute: At the request of local people in the Mount Everest region of Nepal, this initiative has launched a community-driven Everest Alliance that mobilizes a broad coalition of stakeholders – lodge owners, guides, foreign clients, government officials, independent trekkers and climbers, trekking companies, gear manufacturers, and government agencies – to protect and restore the greater Mount Everest ecosystem from village to the summit. High Mountain Adaptation Partnership (HiMAP) hosted an inception workshop conference at the American Alpine Club in Colorado in February 2014 and a workshop of Nepali stakeholders in Kathmandu in May 2014. The Kathmandu workshop followed a month of field research interviewing Nepalis throughout the Khumbu.

CRIS SMALL GRANTS ROUND

The Energy and Resources Institute (TERI)

TERI completed the Data Base Management System (DBMS) in the two project cities of Panaji and Visakhapatnam. In Panaji, the DBMS system has been formally submitted to the Chief Minister of the state of Goa and the Commissioner, Corporation of Panaji, Panaji, Goa. This database management system inventories the infrastructure and services of the city and also links the inventory with spatial maps prepared in a GIS format for the ease of locating the services and assets on the city maps.

A capacity building program for the officials of Corporation of Panaji on the DBMS system was organized for September 26 at Panaji. About 40 officials received training from TERI on using the DBMS system.

TERI developed a vulnerability assessment methodology – the Climate Vulnerability Assessment for Coastal Cities (CVACC) – for assessing the vulnerability of coastal cities to climate change.

Yayasan Kota Kita: The Manado Climate Change Vulnerability Assessment was completed after lengthy edits and inclusion of inputs submitted by the by city stakeholders during the Dissemination Workshop, held in Manado in June 2014, and the Prioritization Workshop in July 2014. During these engagement sessions, a set of general recommendations from the Manado City Government, and a set of more detailed recommendations for each of the city's critical infrastructure systems, were formulated by participants from different institutions and agencies. These were successfully integrated into the final Vulnerability Assessment.

Activities during the period focused primarily on preparing capacity building materials (such as a workshop module, graphic materials, maps, and charts) to support capacity building activities. Preparatory activity also included outreach and engagement of local stakeholders for capacity building activities. One of the strategic aspects of the project is that every capacity building activity should be conducted intensively and facilitated continuously. The capacity building in Manado is designed to be implemented in collaboration with local stakeholders, especially those concerned about climate change issues.

The first capacity building activity was held in September 23, 2014, in collaboration with Sam Ratulangi University (UNSRAT). The final CCVA document was presented and discussed at the workshop, as well

as some other materials prepared by UNSRAT and P5. The workshop is also intended to support the preparation of the city government's development agenda and the implementation of its resilience strategy.

C. OBJECTIVE 1: SUPPORT FOR USAID MISSIONS AND BUREAUS

Under Objective 1, CCRD provides support for USAID Missions and Bureaus. During FY14, CCRD formally launched the Climate-Resilient Development Framework (CRD Framework) and continued work on supporting annexes/papers as well as provided support for the USAID integration pilot in Kazakhstan, including the instillation of the IRI Data Library at Kazakhstan Hydromet.

ACTIVITY 1.1 GUIDANCE, PILOTS, AND RESEARCH

TASK 1.1.1 REVISE VULNERABILITY AND ADAPTATION (V&A) MANUAL

The CRD Framework document was revised, taken through the clearance process, and delivered to USAID on March 24, 2014. The document was introduced by John Furlow and the Global Climate Change (GCC) team at the Adaptation Community Meeting on April 7, 2014. The document is now being included in the CCRD communications plan to ensure wide dissemination of the document to interested parties.

TASK 1.1.2 DEVELOP CLIMATE BRIEFS AND ANNEXES

CCRD staff made progress during the year on five annexes. Emphasis was given to ensuring that annexes complement the climate resilient development framework. A final version of the Water Annex was prepared and the remaining four annexes are at various advanced stages of development.

WATER ANNEX

During this quarter, the Water Annex was updated to reflect the final changes made to the framework document. The Annex was delivered to USAID as a final draft on February 14, 2014. It has been under review at USAID since then.

COASTAL AND MARINE ANNEX

During contract year three, members of CCRD partner Stratus Consulting significantly revised the draft annex developed by Maria Hawes. The team developed an internal review draft that was then reviewed by GCC staff. Comments from GCC staff were incorporated and an external review draft was disseminated to reviewers by USAID. An external review draft of this annex was provided to USAID on March 27, 2014. The team incorporated external review comments into the document and additional review by GCC staff is underway.

GOVERNANCE ANNEX

During contract year three, members of Stratus Consulting rewrote the initial draft of the governance annex written by Jessica Troell and Bruce Meyers of the Environmental Law Institute. The team developed an internal review draft that was reviewed by GCC staff. Comments from GCC staff were incorporated and an external review draft was then disseminated to reviewers by USAID.

MARGINAL POPULATIONS ANNEX

During contract year three, Edward R. Carr from the University of South Carolina developed a preliminary outline of the Marginal Populations Annex. Preparation of a first draft is in process.

VULNERABILITY ASSESSMENT GUIDANCE ANNEX

The Vulnerability Assessment Guidance Annex was revised through several iterations with USAID to better align with the final Climate-Resilient Development Framework, improve the overall readability of the document, clearly communicate the utility of vulnerability assessments to the reader, and clarify the primary audience as persons designing, procuring, and managing an assessment. The document will be finalized in the first quarter of FY15.

INFRASTRUCTURE FACT SHEETS AND SYNTHESIS PAPER

The CCRD team revised the Infrastructure Fact Sheets and Overview to align with the final Climate-Resilient Development Framework. The revised fact sheets were reformatted and translated into Spanish in order to reach a wider USAID audience, including participants in the Latin American and Caribbean CRIS Regional Climate Leadership Academy workshop and stakeholders associated with CRIS pilots in Peru and the Dominican Republic. More than 250 Spanish and English booklets have been distributed to USAID representatives, partners, and stakeholders at workshops and meetings both domestically and internationally.

TASK 1.1.5 NEW DIRECTIONS IN PILOTS AND RESEARCH

Exploring Climate Resilient Low Emission Development Strategies (CRLEDS)

CCRD developed a concept paper on climate-resilient low-emission development (CRLED) as a resource for practitioners seeking to develop such projects. The CCRD team performed an extensive literature review to inform the paper and conducted outreach efforts through venues such as the Asia LEDS forum and Global Partnership to better understand stakeholder perspectives.

The paper includes a brief background on CRLED to date. It showcases a typology that classifies interactions between adaptation and mitigation activities and presents example activities within this typology for a selection of sectors. It also includes a set of key considerations to consult in the mitigation and adaptation planning process, including considerations of mitigation that can be integrated into the Climate-Resilient Development Framework. The paper closes with concluding thoughts and recommended next steps to further the practice of CRLED within development projects. It also provides a set of annexes that build on the existing inventory of relevant activities to provide sector-specific resources that mitigation and adaptation practitioners can use when planning projects.

Peer Learning Strategy

The CCRD team finalized the Peer Learning Strategy White Paper, a methodology briefer on peer learning benefits, principles, and approaches. The paper includes information about the Institute for Sustainable Communities (ISC) leadership academy model, as well as AECOM's twinning approach.

Post Event Assessment of Resilience (PEAR)

CCRD began to build out the PEAR approach in FY14. In particular, a detailed outline for preparing for and executing a PEAR process was drafted and refined. A PowerPoint presentation, describing the dimensions of the approach, was also developed. Furthermore, a partnership with the American Red Cross is currently under discussion.

Planning for Climate-Resilient Post-Disaster Reconstruction

CCRD made progress on developing the Planning for Climate-Resilient Post-Disaster Reconstruction paper. In particular, revisions were focused on making the paper consistent with USAID's final Climate Resilient Development framework and other concepts, such as the Vulnerability Assessment Annex.

Revisions also included bringing out elements that make the concept unique and applicable to practitioners.

ACTIVITY 1.2 INFORMATION, TOOLS, AND SCIENCE AND TECHNOLOGY

TASK 1.2.3 SUPPORT THE UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP) ADAPTATION LEARNING MECHANISM (ALM) WEBSITE

The ALM website is entering the final phase of redevelopment – theming and content migration. The decision on where to host the site has been made and a plan for migrating content from the old site to the new has been developed. The CCRD team meets with the Aten Design Group weekly by telephone to raise and resolve issues. The planned launch date is the first quarter of FY15.

ACTIVITY 1.3 TECHNICAL ASSISTANCE AND CAPACITY BUILDING SUPPORT

Task 1.3.1 Provide Capacity Building Support on Mainstreaming V/A

USAID/Macedonia requested assistance in training the USAID-funded local non-governmental organization (NGO), Milieukontakt Macedonia (MKM), on USAID's Climate-Resilient Development Framework. Over the past year, the CCRD team has conducted two trainings and provided technical assistance for MKM.

In October 2013, the team conducted a 2 ½ day training of trainers, provided technical assistance on adapting the training for MKM's work with small municipalities, observed the MKM trainers during a one-day stakeholder workshop, debriefed with MKM on the training, and provided suggestions for working side-by-side with municipalities to integrate climate issues into municipal strategies.

Over the course of the year, CCRD provided remote technical support for MKM as they attempted to integrate climate change adaptation considerations into their "Green Agenda" process.

In August 2014, the CCRD team returned to Macedonia to conduct a four-day advanced adaptation training for MKM, focusing on the final CRD Framework, providing additional and more detailed sessions (e.g., climate information, cost/benefit analysis, financing adaptation), and conducting two adaptation games. The CCRD team debriefed with MKM and discussed opportunities for improving climate considerations in the "Green Agenda" process.

Task 1.3.3 SUPPORT DEVELOPMENT OF USAID'S FEDERAL AGENCY CLIMATE CHANGE ADAPTATION PLAN

CCRD updated, edited, and formatted the Vulnerability Profiles for Jordan, West Bank and Gaza, and Central Asia for clearance. The four profiles were cleared and posted on USAID's internal website.

TASK 1.3.4 PROVIDE SUPPORT FOR USAID INTEGRATION PILOT IN KAZAKHSTAN

Major accomplishments for FY14 for CCRD's support for the USAID-funded Climate Resilient Wheat (CRW) Integration Pilot are presented below in four areas: Strengthening Climate Services; Improved crop yield forecasts; Capacity building on climate change and adaptation responses in agriculture; and Communications.

STRENGTHENING CLIMATE SERVICES

CCRD partners from IRI, Brad Lyon and Tony Barnston, upgraded Kazhydromet's capabilities in forecasting and monitoring of drought conditions. IRI provided training in alternative monthly and seasonal forecasting methods using multiple and negative analogues (as opposed to current forecasting

approach using single analogues) and in making probabilistic forecasts. These alternative methods will allow Kazhydromet to verify and adjust their forecasts based on analogues. IRI also installed the IRI Data Library at Kazhydromet that facilitates uploading of precipitation and temperature data and enables Kazhydromet to make statistical predictions of drought conditions and update their drought index more frequently and at lower cost of staff time.

IMPROVED CROP YIELD FORECASTS

CCRD consultant, Alan Basist, worked with the National Space Institute (NSI) in Almaty to improve their model for forecasting wheat yields, using microwave remote sensing data to assess soil moisture. The new model will allow NSI to provide earlier crop yield forecasts than are currently possible with the existing methodology, thus providing producers, the government, and exporters with more timely information before and during the growing season.

CAPACITY BUILDING ON CLIMATE CHANGE AND ADAPTATION RESPONSES IN AGRICULTURE

CCRD staff delivered a two-day training-of-trainers to a group of 10 trainers (nine from Kazakhstan and one from Tajikistan) plus three CRW staff to familiarize trainers with the Climate-Resilient Development Framework to help them design and deliver stakeholder workshops focused on options for responding to climate change in the wheat sector (and agriculture, more generally). Subsequently, the Kazakh and Tajik trainers convened 10 stakeholder workshops (eight in the wheat-growing regions of Kazakhstan and two in Tajikistan) for 450 participants. In these workshops, farmers and other agricultural sector participants identified and assessed more than 50 adaptations designed to improve climate resilience.

CCRD staff organized and led a two-week study tour for a group of 11 Kazakh and one Tajik participants in the United States, that included visits to the University of Nebraska, IRI, National Oceanic and Atmospheric Administration's (NOAA) Weather and Climate Prediction Center, and meetings with USAID and U.S. Department of Agriculture (USDA) in Washington, D.C. The study tour enabled Kazakh participants to establish networks with wheat researchers and drought and climate forecasting experts and their organizations.

CCRD staff and consultants presented on support to CRW on adaptation and crop yield forecasting in a conference organized by CRW in Dushanbe, Tajikistan, titled "Central Asian Practical-Scientific Conference: State and Problems of Central Asian Wheat Production Sector and Climate Change." The conference included 180 participants from five Central Asian countries.

COMMUNICATIONS

CCRD showed the Climate Resilient Wheat video to local partners during the February/March 2014 TDY mission. Comments were received and the video was revised to include new footage and interviews. It has been submitted to USAID for approval to share it with partners. Several organizations, including USAID/Kazakhstan, UNDP, KazAgroInnovation, and a national public television network (Khabar) have requested copies of the video to share with their partners and audiences.

D. OBJECTIVE 2: COORDINATE WITH OTHER US GOVERNMENT AGENCIES TO SUPPORT MAINSTREAMING

ACTIVITY 2.1 ADAPTATION PARTNERSHIP WORKSHOPS

TASK 2.1.1 CONDUCT ADAPTATION PARTNERSHIP WORKSHOPS

CLIMATE CHANGE TRAINING FOR MARINE PROTECTED AREA (MPA) PRACTITIONERS (WESTERN INDIAN OCEAN REGION)

In February 2012, through the Adaptation Partnership, 39 participants representing nine Western Indian Ocean (WIO) countries and NGOs from throughout the region and the United States convened in Cape Town, South Africa to identify climate change capacity building needs for coastal and marine protected areas in the WIO region. To respond to identified priorities related to understanding and responding to climate vulnerabilities, the National Oceanic and Atmospheric Administration (NOAA) and the Western Indian Ocean Marine Science Association (WIOMSA) proposed a capacity building program starting with three trainings, as well as a mentor training program to provide regional marine resource practitioners with the knowledge, skills, and techniques to take over the program in time (3-5 years).

With the support of CCRD, the first training, "WIO MPA Capacity Building Workshop and Mentor Training I – Understanding and Communicating Climate Change," took place in Grahamstown, South Africa, from Nov. 19-23, 2013. The mentor training (Nov. 15-18) preceded the training course and provided 12 mentors from eight countries in the WIO region with tools for facilitating participatory trainings and advance, in-depth exposure to the curricula for the general training. For the general training, there were 35 participants (12 mentors, 23 participants) from eight countries in the region. The purpose of the training was to provide a basic understanding of the root cause of climate change; the types of physical, chemical, and biological changes that have begun to or may occur; and anticipated impacts on habitats, species, natural systems, and human communities. Participants also developed a stakeholder engagement plan for involving stakeholders in planning for and adapting to climate change, and familiarized themselves with tools for communicating climate change issues, including message development. In November 2013, a summary report of the mentor and general training in South Africa was released. The report includes a participant list, a training agenda, and participant evaluations of the training.

The second CCRD-supported training under the capacity building program, was the "WIO MPA Capacity Building Workshop and Mentor Training II – Vulnerability Assessment, Scenario Planning, and

Analyzing Adaptation Strategies," held in Zanzibar, Tanzania, from May 31-June 6, 2014. The training consisted of mentor training (May 31-June 1) and general training (June 2-6). For the mentor training, there were 11 participants from eight countries in the region. The purpose of the mentor training was to familiarize mentors with training agendas and materials, so that they can take on increasing roles and responsibilities for training delivery, preparing them to eventually become the instructors. For the general training, there were 31 participants (11 mentors, 20 general participants). The purpose of the general training was to provide MPA managers in the region with the knowledge, skills, and tools they need to better understand the climate vulnerabilities and impacts that affect their sites as well as to identify, evaluate, and select actions to reduce these vulnerabilities and increase resilience. In July 2014, a summary report of the mentor and general training in Zanzibar was released. The report includes a participant list, a training agenda, and participant evaluations of the training.

Expected outcomes of the overall training program include: a new network for MPA practitioners to exchange knowledge and experiences on managing climate and non-climate stressors; a cadre of local experts who can continue to build capacity to understand and respond to climate change issues in marine and coastal areas in the WIO region; participant roadmaps that articulate the actions they expect to take over the next year in relation to the topics covered in the training; MPA practitioners better understand and are able to address climate and non-climate stressors, reduce vulnerability, and increase resilience, enabling them to manage their MPAs more effectively.

E. OBJECTIVE 3: IDENTIFY AND RESPOND TO EMERGING ISSUES AND FILL GAPS

Under Objective 3, CCRD continued work during FY14 on the four emerging areas. The NAP working group finalized a policy brief for UNFCC focal points and participated in high-level multi-donor meetings. Under High Mountain Adaptation Partnership (HiMAP), work continued on completing the Local Adaptation Plans for Action (LAPAs) in Peru and Nepal. The CSP began expanding on the outcomes from the Third International Conference on Climate Services (ICCS3) conference held in Jamaica, and continued supporting the Agricultural Model Intercomparison and Improvement Project (AgMIP). The CRIS program continued implementation activities in pilot cities in Peru, Dominican Republic, and Mozambique.

ACTIVITY 3.1 SUPPORT ADAPTATION PLANNING AND IMPLEMENTATION

TASK 3.1.1 SUPPORT PREPARATION OF NATIONAL ADAPTATION PLANS

The CCRD team supported State Department and USAID staff in drafting a white paper on lessons learned from U.S. Government support for the NAPs process. The white paper, entitled "Experience with the Application of the Initial Guidelines for Formulation of National Adaptation Plans," was tabled during the May 2014 UNFCCC negotiations in Bonn, Germany.

The paper was drafted by CCRD staff and revised by State and USAID staff. The paper built on the Compendium on NAPs and the experience gained in the three NAP workshops (Jamaica, West Africa, and Tanzania). It described the three workshops and other activities related to support for NAPs and from that experience identified lessons learned. State Department staff reported that the white paper was well received by other delegates.

Joel Smith (Stratus Consulting) and Mukul Sharma (Engility) attended and participated in a meeting in Washington, D.C., on May 12 to compare programs on national adaptation planning with John Furlow and Jonathan Cook from USAID and staff from the UK Department for International Development (DFID) and the German GIZ.

Joel Smith attended a Least Developed Countries (LDCs) Expert Group (LEG) technical meeting on the National Adaptation Plans process held in Dar es Salaam, Tanzania on February 24-26, 2014. Mr. Smith participated in break-out groups assessing how the LEG process developed can be improved. Mr. Smith emphasized improvements that would strengthen consideration of a development first approach. In September, John Furlow was informed by UNFCCC staff that the process has been modified to put more emphasis on incorporating adaptation into development.

In collaboration with the University of Rhode Island Coastal Resources Center, the CCRD team completed the policy brief for dissemination to the broader group of participants from the West Africa workshop via the workshop listserv and hard copies to ECOWAS. Progress in Jamaica has been transferred to the Climate Resilient and Low Emission Development Strategies and Climate Services tasks within CCRD.

Task 3.1.2 DEVELOP AND PILOT FAST-TRACK IMPLEMENTATION (FTI) CONCEPT

In FY14, CCRD revised, finalized, and submitted the following technical report/tool to USAID: *Fast-Track Implementation of Climate Resilience: A Compilation of Adaptation Options*. The technical report was approved by USAID in late June 2014. The report/tool describes an approach for accelerating aspects of the CRD process under certain conditions. It also provides a criteria-based approach for selecting adaptation options, including consideration of cost, effectiveness, co-benefits, barriers, and other factors. The report/tool contains detailed descriptions of FTI adaptation options for specific combinations of sectors and hazards, along with descriptions of how each criterion applies to each option. Elements of the FTI approach have been implemented through CRIS small grants and pilot work in Peru, Mozambique, and the Dominican Republic.

ACTIVITY 3.2 GLACIERS AND MOUNTAINS

TASK 3.2.2 DEVELOP THE HIGH MOUNTAIN ADAPTATION PARTNERSHIP'S COMMUNITY OF PRACTICE (COP)

The HiMAP newsletter was mailed quarterly in digital format to the HiMAP CoP (183 members) and interested parties. The newsletters consisted of photos with brief introductory text that links to recent articles on the www.highmountains.org website.

The HiMAP team produced a number of publications and outreach material, including the production of a video documenting the July 2013 HiMAP workshop in Peru entitled High Mountains Adaptation Partnership, seven publications in peer-reviewed scientific journals, and one popular and one textbook on mountain geography.

Cesar Portocarrero also completed a handbook of Peruvian techniques for reducing the risk of glacial lake outburst floods (GLOFs), which represents a unique and global resource to governments, donors, scientists, field practitioners, and local communities throughout the mountain world. The full handbook contains numerous case studies, and the summary version provides the practical/technical information.

The HiMAP website was successfully transferred to The Mountain Institute's Science and Exploration webpage. Please see: http://mountain.org/science-and-exploration

TASK 3.2.4 IMPLEMENT CoP PILOT PROJECT AND RESEARCH

NEPAL REGIONAL LOCAL ADAPTATION PLAN FOR ACTION

The Khumbu LAPA was developed in consultation with many different local stakeholders and identifies six priority climate-induced hazards, ranked in order of importance: (1) GLOFs, (2) landslides, (3) heavy snowfall, (4) windstorms, (5) forest fires, and (6) floods.

The Khumbu LAPA represents a significant departure from prior LAPAs developed in Nepal by inclusion of development needs rather than having an exclusive focus on "sensitization." The LAPA also uses a larger geographical unit for planning that includes all three Village Development Committee (Chaurikharka, Namche, and Khumjung) of the Sagarmatha National Park (SNP) and Buffer Zone as a collective planning unit. The team made sure to incorporate scientific data and knowledge to verify or challenge local experience and perceptions of climate change impacts and vulnerabilities. There was a

focus on the identification of funding opportunities, mainstreaming into available sources of funding, and priority project monitoring and evaluation systems, and inclusion of lessons learned. A five-year implementation plan was developed, and prospective donors for each activity identified.

Memoranda of Understanding (MOUs) in support of future collaboration in the implementation of future LAPA priority projects were drawn up and endorsed by the Department of National Parks and Wildlife Conservation and Sagarmatha National Park and Buffer Zone.

Strategic partnership meetings with the Department of Hydrology and Meteorology (DHM) and the UNDP Community Based Glacial Lake Outburst Risk Reduction Project were conducted on a regular basis that focused on (1) sharing key findings of the Khumbu LAPA and aligning it with the Project's plans and programs, (2) preparing a protocol for sharing raw ground penetrating radar studies and bathymetry data as requested by DHM, and (3) exploring future collaboration opportunities. DHM specifically requested the assistance of HiMAP in its forthcoming field evaluation of six dangerous glacial lakes using HiMAP's Glacial Lake Rapid Reconnaissance approach.

Mainstreaming meetings with local communities, DNPWC, SNP, and Buffer Zone Council, were conducted that focused on integrating the Khumbu LAPA into the Sagarmatha National Park Management Plan and five year Buffer Zone plan. The final Khumbu LAPA Summary was reviewed and endorsed by the SNP staff and leadership, published, and distributed to stakeholders in the Khumbu and Kathmandu. The Summary LAPA included lessons learned during the LAPA and mainstreaming processes, as well as guidance in the identification of funding sources and M&E systems, and was made available to UNFCCC Conference of the Parties (COP20) participants in Lima, Peru.

KHUMBU VALLEY GLOF RECONNAISSANCE, RISK MODELING, AND COMMUNITY-BASED RISK MANAGEMENT AND MITIGATION

Collaboration with the UNDP Imja Lake GLOF Risk Reduction project continued with participation in the UNDP project inception. HiMAP Imja Lake technical reports were distributed to all interested parties in Kathmandu. DHM, TMI, and the University of Texas at Austin (UTA) have signed a data-sharing protocol with DHM. Electronic copies of all raw GPR and bathymetry data were transferred to DHM.

The enhanced Imja Lake GLOF model was completed. This included more detailed terrain mapping (5m x 5m resolution of the Imja basin to below Dingboche) that supported a two-dimensional debris flooding model and much higher resolution inundation results at Dingboche to map the hazard to the community members there.

The development of the Imja Lake hydrology model continued with the development of the debris-melt model for the glacier and mapping of the calving front of the glacial ice into the lake. Recent and historical remote sensing data for Khumbu region was used to assess the growth rate of the lake in recent years.

Instrumentation of the Imja glacier was accomplished in May 2014 with an infrared camera used to take thermal images of the glacier to determine thicker and thinner debris covered areas and to correlate temperature readings with NASA Landsat 7 and 8 satellite data; installation of an automatic weather station to collect temperature, wind speed, incoming solar radiation and soil moisture on the glacier; installation of a time lapse camera to film the calving from the front of the glacier into Imja Lake; installation of 20 ablation stakes to directly measure the melting of the glacier to verify the glacier melt model; installation of temperature sensors to measure the temperature of the debris at different depths down to the glacier ice; and a land survey of the glacier using a total station.

COMMUNITY-BASED GLACIAL LAKE RISK REDUCTION AND WATERSHED MANAGEMENT – QUILCAY WATERSHED

The LAPA was completed for the Quilcay watershed which includes the city of Huaraz. The LAPA document is being used by the Waraq Municipal Commonwealth as part of their "Strategic Institutional Plan," which provides a framework for investment in adaptation projects with public funds. The following adaptation projects were identified as priorities: (1) Strengthen capacities for risk of disaster management; (2) Improve knowledge of hydrology and water quality; (3) Improve water quality; (4) Explore water development (reservoirs and wetlands); (5) Improve and extend irrigation infrastructure; (6) Expand and improve potable water and sewage treatment systems; (7) Develop waste collection systems for rural villages; and (8) Strengthen capacities for tourism activities.

Technical assistance was provided to the municipalities of Huaraz and Independencia to complete documentation required to obtain government certification and establish the operational systems to function as the Waraq Municipal Commonwealth and receive public funds. This included providing technical assistance to prepare a diagnostic study to justify the need for the Commonwealth, and participating in multiple meetings to draft the ordinances of the commonwealth and with the Prime Minister's Office (bureau of decentralization) to support the process of certification for the Waraq Commonwealth. The Waraq Commonwealth has the explicit objective of promoting local economic development, management of risk reduction, and climate change adaptation in the territory of Quillcay watershed. By end of the year, the Commonwealth had designated two part-time staff to convert LAPA project plans into actual public investment projects. The projects already in the pipeline include the Early Warning System for the city of Huaraz and small emergency bridges to secure exit routes.

HiMAP developed a strong interaction with the Ministry of Environment of Peru (MINAM) in order to increase opportunities to mainstream LAPA activities and technical work conducted by UTA to guide risk reduction of a Palcacocha GLOF. All key studies produced under HiMAP by TMI and UTA were published with funding from MINAM and co-branded, thus increasing the usefulness of the technical documents. These materials were used by MINAM in coordination with TMI to organize public forums and activities to discuss and communicate results and action plans (both in Huaraz and with high-level decision-makers in Lima). The publications include a (i) presentation of the commonwealth approach to sustainability of adaptation; (ii) the set of six teacher training guides on mountain geography; (iii) a historical assessment of the impacts resulting from the 1941 GLOF; (iv) a study of water quality conditions at Quillcay and remediation actions resulting from the Climber Scientist program; (v) the GLOF simulations models; (vi) the Quillcay WEAP model; and (vii) the virtual on-line system developed to collect data for watershed management and climate change adaptation measures.

Close work with MINAM helped consolidate commitment to implement LAPA activities. MINAM financed consultants to assist the commonwealth to prepare the early warning projects and provided funds to implement restoration of alpine wetlands in the Quillcay basin, one of the actions identified in the LAPA.

TMI secured funds from USAID Peru that will facilitate implementation of LAPA adaptation measures in cooperation with UTA (April 7, 2014 – April 6, 2017).

In summary, HiMAP completed in Ancash the cycle of vulnerability analysis, community consultation, planning and pilot implementation of adaptation measures. Institutional foundations were developed in cooperation with local governments and long-term commitments to implement the plans in place.

CLIMATE CHANGE ADAPTATION, RISK MITIGATION, AND DISASTER MANAGEMENT CAPACITY BUILDING FOR THE HIGH MOUNTAIN CITY OF HUARAZ, PERU

Updated digital elevation model (DEM) data was obtained from MINAM after new aero-photography flights and production of DEM data by Horizons Company in Peru.

An avalanche model was used to determine the characteristics of small, medium or large avalanches falling into Lake Palcacocha. A three-dimensional lake hydrodynamic model was developed to determine the nature of the waves potentially produced by avalanches into Lake Palcacocha. A moraine erosion and breaching study was carried out to determine the outflow from Lake Palcacocha in the event of a GLOF. The GIS system for the Quillcay watershed was updated and a new report prepared describing its functionality. The 2007 Peru Census for the City of Huaraz were used to calculate social vulnerability and potential loss of life in the event of a GLOF from Lake Palcacocha and the reduction of vulnerability due to the possible installation of an early warning system.

ACTIVITY 3.3 CLIMATE SERVICES

TASK 3.3.2 COORDINATE ACTIVITIES OF THE CLIMATE SERVICES PARTNERSHIP

During this year, significant progress has been made in the continuing development of the CSP as a global community of practice dedicated to improving the knowledge and practice of climate services for society.

Convening. The most significant convening event that CSP fosters is the annual International Conference on Climate Services. The ICCSs are intended to bring the community of practice (researchers, providers, users, funders) together to review learning and experiences in climate services development, delivery, and assessments. The conference also serves as a forum for new ideas to be explored and discussed and to identify areas for new collaborations.

ICCS3 was convened in Montego Bay, Jamaica, in December 2013. It was sponsored by the USAID, convened by the CSP, and hosted locally by the Jamaican Ministry of Water, Land, Environment and Climate Change and the Jamaica Meteorological Service.

The conference was organized around the theme "Transition from research & demonstration to sustained services." It featured high-level presentations, breakout discussions, synthesis talks, and side events that brought together key stakeholders and industry leaders and allowed the CSP initiative to showcase our work and build mainstreaming of key CSP concepts and frameworks. The event also included a Tools Expo, in which partners from around the world were able to learn about and receive training on over 30 climate information tools.

One output of the meeting was the development of an international internship program based in Kingston and focused on the development of agricultural climate services for Jamaica.

The next ICCS4 will take place in December 2014 in Montevideo, Uruguay. The CSP Secretariat is leading the agenda development, coordination, and planning effort. The conference is focused on decision support systems and will feature such systems in sectors including agriculture, health, and disaster risk management. The conference will also explore themes related to the design of effective decision support tools, including understanding users needs and connecting to policy.

Fostering connections. The CSP introduced the CSP Newsletter to provide the climate services practitioner community with news, updates, partner and program information, announcements, editorials and opinion pieces of interest to the community. No such communication focused specifically on climate services was in existence at launch, and the CSP Newsletter remains the only such communication. It is currently circulated to 1,893 recipients and has brought wide acclaim from the community. To date, the CSP has published four issues of the Newsletter.

In 2014, the CSP launched an Early Career Professional Network to help young professionals to get to know more about each other, potential collaborators, and about the field. To support this network, the

CSP Secretariat has begun to host quarterly Virtual Meet & Greet sessions, developed a LinkedIn group, and will foster meet-ups at relevant conferences.

The CSP Secretariat maintains regular communications with the CSP Coordinating Group through monthly teleconferences and regular email exchanges. Attached (Appendix 4) are summaries of the monthly calls over the past year.

Capturing and disseminating knowledge. CSP launched the Knowledge Exchange in 2013, a continuing series of webinars to present programs, activities, and new ideas to be shared and discussed with the CSP. Over the past year, a webinar on Building Supply Side Climate Change Resilience, another on the NASA SERVIR program, and two more recently in conjunction with the aforementioned Early Career Professional Network have been hosted.

In connection with the anticipated development of El Niño in 2014, the CSP Secretariat has developed a template for consulting with climate services actors and will oversee a process to capture in "real time" the expectations, experiences, and learning that can shed light more broadly on the implementation and good practices of climate services.

Generating new knowledge. CSP has supported the creation and continuing work of several groups geared toward producing new knowledge regarding the development and delivery of climate services. The Working Group on the Ethics of Climate Services was formed following a successful ICCS3 forum on this topic.

In addition, the Working Group on Research Prioritization, which grew out of a forum organized at ICCS3, has developed a survey tool for the research community, which strives to bridge the divide between research and practice in climate services. The group continues working towards this goal.

Outreach and Program Linkages. The most significant and strategic program linkage effort this past year has been in establishing a more formal relationship with the GFCS. Over the second half of year three, efforts have been directed at the development of a white paper on Exploring Potential Collaboration between the GFCS and CSP. Discussions on this white paper and further collaboration continue, and CSP looks forward to presenting side events at the upcoming Global Framework for Climate Services (GFCS) Management Board meeting in late 2014.

Throughout the year the CSP has increased its community by 644 individuals.

TASK 3.3.3 COMPILE AND DISSEMINATE CURRENT CLIMATE SERVICES KNOWLEDGE

The CSP website currently includes a full description of the activities and resources collected by the CSP, hosts Knowledge Exchange webinars, and offers a mapping tool of current projects.

The website also contains a revised climate services database tool, including new functionality and information layers. Sixty-three new entries were made to the online searchable database.

The IRI communications team developed and disseminated the ICCS3 videos, a write-up on the IRAP Caribbean Regional Climate Outlook Forum (CariCOF) activities, Q&A on CariCOF, the story of IRAP, a Flickr album from the CariCOF activities, a video detailing how climate can impact Caribbean countries, a video dramatization of forecast applicability by Jamaica Met Service, Facebook posts, and IRI Twitter feed.

TASK 3.3.4 ASSESSMENTS OF CLIMATE SERVICES AND CASE STUDIES

Working from the mid-level evaluation methodology developed in 2013, mid-level evaluations were completed in Kazakhstan, South Africa, Indonesia, and the Caribbean during late 2013. CSP collected lessons learned and is developing a synthesis report linking existing evaluation methodologies to an

overarching evaluation framework in collaboration with the University Corporation for Atmospheric Research (UCAR).

TASK 3.3.5 ECONOMIC VALUATION OF CLIMATE SERVICES

CCRD is collaborating with the World Meteorological Organization and the World Bank to prepare a publication on valuing the benefits of climate services, ***Forecast Value: Economic Assessment of Meteorological and Hydrological Services***. The publication covers methods for assessing benefits and costs and provides practical guidance for climate service providers to design benefit studies. It is scheduled for external review in November 2014, and WMO will finalize the primer for publication early in 2015.

TASK 3.3.7 NATIONAL/REGIONAL-LEVEL CLIMATE SERVICES DEVELOPMENT

Subtask 3.3.7.1a Climate service capacities and communities of practice in West Africa

A training workshop on data quality control, satellite rainfall estimation, and merging station data with satellite and other proxies was held July 17-28, 2013. Staff from the Meteorological Services organizations from 16 Economic Community of West African States (ECOWAS) countries and 14 AGRHYMET staff attended the workshop. The workshop was designed to enable participants to understand and implement basic data quality control procedures; to ensure that participants understand the strengths and limitations of satellite rainfall estimates; and to enable participants to understand and implement data merging techniques.

A stakeholder workshop was organized from January 21-23, 2014, to introduce AGRHYMET's new data information products to users in the region. Key objectives of the workshop were to enable participants to understand and use AGRHYMET's new products, introduce participants to basic concepts of climate change, climate variability, and climate risk management, solicit critical feedback from stakeholders to improve on and supplement the information products, and develop communities of practice. More than 30 participants attended the three-day workshop from 16 countries and the AGRHYMET Center.

Subtask 3.3.7.2 Central America Follow-up Workshops to Adaptation Partnership workshop

IRI's work in Central America began with stakeholder workshops in the Dominican Republic (April 2013), Guatemala (May 2013), and Honduras (July 2013). These workshops were hosted in conjunction with local and international partners, including the Consultative Group on International Agricultural Research (CGIAR), and the Research Program on Climate Change, Agriculture and Food Security (CCAFS), brought together representatives from each country's climate information user and provider communities and were designed to foster conversations regarding priorities for the development of climate information tools.

In October 2013, representatives from all three countries and Jamaica convened for a workshop entitled "Developing climate information tools," at Columbia University's Lamont-Doherty Earth Observatory in Palisades, NY to train and work collaboratively with workshop participants, providing background, software, and resources to help participants develop climate information tools appropriate to their own context.

Following the workshop, participants worked with IRI colleagues to advance the tools. In the case of Honduras, this resulted in a product that forecasts agricultural variables, available here: http://iri.columbia.edu/~remic/proto/maproom/Agriculture/Fcst_Agri/Honduras_SWB.html

Subtask 3.3.7.4 National-level Climate Services development in Jamaica

CCRD supported the development of climate services capacity in Jamaica through an integrated program of technical assistance, training, tool development, review and advisory functions, policy engagement activities, and promotion of South-South collaboration opportunities. IRI worked with the Jamaica Met

Service (JMS) to implement the IRI Climate Predictability Tool for forecasting drought conditions for the country. During the current period, the JMS has continued to work with IRI on a skills assessment.

IRI has also worked with the JMS to incorporate additional climate data in the IRI Data Library, supporting a soil water balance monitoring and prediction tool (one outcome of the tools training workshop in October/November 2013). IRI developed an interface to assimilate data provided by JMS into the Data Library. Further work on data quality control, addressing (spatial) data gaps, etc., is ongoing. Once this is complete, historical precipitation, temperature, and soil water maps will be developed.

The first climate services stakeholder workshop, convened by CSP, was held in Kingston, Jamaica, on April 15, 2014. This meeting was designed to assess agriculture community awareness, access, use, and value of climate information services piloted under the Jamaica agricultural climate services initiative.

The working group identified targets for outreach, including the Ministries of Agriculture and Fisheries and of Water, Land, Environment, and Climate Change and engagement with the National Drought Committee, made up of senior government officials from several agencies. Working group members met with the Ministry of Agriculture in May 2014 to alert the Ministry to the climate services activities that have already been developed, their significance, and prospects to build on these. The Ministry requested a short brief on current and planned work, which was provided. Follow-up discussions are being pursued.

South-South collaboration between Jamaica and Uruguay is being developed in association with ICCS4 (Uruguay). CSP is organizing a high-level dialogue event to involve senior officials from Ministries of Agriculture of several countries to share experience and develop recommendations on successful models of implementation of climate services driven by sector/society needs. A small technical team from Jamaica will visit counterpart groups in Uruguay for a several day visit, to discuss technical innovations, tools, and their application in the respective countries. We expect this to lead to opportunities for further exchange and collaboration, beneficial to the Jamaican agriculture climate service venture.

IRI has also partnered with University of West Indies (UWI) (Mona), the University of Arizona, and the University of the Republic (Uruguay) to support a summer internship program on climate services in Jamaica. Students, with mentorship from UWI faculty and IRI, will seek to understand better current practices, needs, and opportunities for climate services. Support for this activity was leveraged from UWI, NOAA, and other sources. Findings provide important new guidance on stakeholder needs and interests and will be shared and discussed by the climate services Working Group. Publication is pending.

TASK 3.3.8 DEVELOP CLIMATE SERVICES PRODUCTS FOR THE AGRICULTURAL SECTOR

Subtask 3.3.8.1 Develop the next generation of Global Gridded Biophysical Model Systems

In partnership with the University of Chicago, AgMIP researchers at Columbia's Center for Climate Systems Research (CCSR) have advanced a prototype harmonized platform that uses multiple crop models and improved climate, soil, and management inputs for a parallel System for Integrating Impacts Models and Sectors (pSIMS). Presently pSIMS supports both the DSSAT and APSIM crop model interface. During the course of the project, the framework has been prototyped, refined, tested, and applied in two large-scale studies: global historical analysis as part of the AgMIP Global Gridded Crop Model Intercomparison (GGCMI) project and a study of different models and soils for the evaluation of agriculture in Sub-Saharan Africa.

The prototype products and analyses were presented and discussed at workshops hosted in Chicago September 3-6, 2013, New York April 9-11, 2014, as well as with AgMIP researchers – including AgMIP researchers from Sub-Saharan Africa and South Asia – at the 4th Annual AgMIP Global Workshop at Columbia University, October 28-30, 2013, and AgMIP "Finish Line" Workshop of Regional Teams in Arusha, Tanzania, January 30 – February 4, 2014.

Outcomes from these events include the development of a new soil dataset for Africa (S-world Africa), the incorporation of a new soil dataset (AfSIS) into the AgGRID framework, the development and improvement of a variety of tools, translators, and functions to be used by the modeling community, an agreement on the initial soil conditions to best harmonize for future intercomparisons, preliminary intercomparisons between both models and soil datasets in the Sub-Saharan African region, and initiation of development on new, parallel version of the SALUS crop model (pSALUS).

Subtask 3.3.8.2 Develop Near-Term Climate Scenarios for AgMIP

The goal of this task is to improve the ability of agricultural stakeholders and decision-makers to plan on the decadal time scale (over the next 10-30 years, or "near-term"). This is challenging due to the combination of the early signatures of climate change and continuing climate variability that may still dominate this period.

Methodologies for decadal-scale climate scenario generation under development at the IRI were enhanced with AgMIP climate products and inputs from participants in AgMIP's regional integrated assessments in West Africa and South India. Results have enabled pilot agro-climatic analyses revealing strong influences of climate change and climate variability on West African agriculture and underscoring the importance of tracking their interactions in future assessments of climate impacts in AgMIP and beyond.

TASK 3.3.10 INTERNATIONAL RESEARCH AND APPLICATIONS PROJECT

The International Research and Applications Project (IRAP) advances adaptation and resilience to climate variability and change by supporting risk management through improved design, development, and provision of climate information, particularly as they contribute to national and regional development goals. IRAP is a joint effort led by researchers at the University of Arizona (UA) and Columbia University's International Research Institute for Climate and Society. IRAP has focused on the Caribbean region in its first year.

The most significant output of the year was the two-day stakeholder workshop in May 2014. The IRAP team collaborated with the Caribbean Institute of Meteorology and Hydrology (CIMH) to stage this workshop on May 29-30, 2014.

In preparation for the workshop, the IRAP team performed analyses and designed research protocols for user needs assessments and vulnerability studies, as well as our evaluation approach, methodology, and tools. During the workshop, the IRAP team held simulations, led discussions, and administered surveys. The team also conducted interviews in order to gather information about how to work with, and learn from, our partners in the Caribbean.

The co-branded IRAP project website, developed during IRAP's first year, provides information about the project for external site visitors and also offers a password-protected secure portal to share materials between IRI, UA, and NOAA, and USAID project managers. Prototype map rooms for the focus regions have also been developed and are linked to the IRI Data Library to be used for monitoring and forecasting across varying time scales.

ACTIVITY 3.4: CLIMATE RESILIENT INFRASTRUCTURE SERVICES PROGRAM

In FY14, CCRD continued to implement the Climate Resilient Infrastructure Services (CRIS) Program, which focuses on developing and testing tools and approaches to increase the climate resilience of infrastructure and the services they provide.

Task 3.4.1 Identification of Pilot Cities

This task was completed in FY14 Q1 with the selection of four CRIS pilot cities: Nacala-Porto, Mozambique; the National District of Santo Domingo, Dominican Republic; and Piura and Trujillo, Peru. The first three cities were selected in FY13, while Trujillo was added as the fourth pilot through a buy-in from USAID/Peru in FY14 Q1. Work with the city of Hue, Vietnam, is also included as part of the CRIS effort.

Task 3.4.2 CRIS Support to Pilot Cities to Accelerate Climate Risk Management

CCRD partners ICF, IRG, Stratus, and Cascadia worked with pilot cities in Mozambique, Peru, the Dominican Republic, and Vietnam to implement USAID's Climate-Resilient Development Framework. CRIS teams developed, tested, and refined approaches and tools for stakeholder-driven scoping activities; climate vulnerability screening/assessment; adaptation option identification, evaluation, and prioritization; and implementation of the Fast-Track Implementation (FTI) approach. The CRIS teams provided trainings and technical assistance for municipal staff and local partners to mainstream these approaches and tools into their decision-making. When finalized, these approaches and tools can be shared with other stakeholders to increase the climate resilience of infrastructure services.

In each country, the CRIS program worked closely with the USAID mission to ensure that activities were consistent with the mission's goals and contributed to sustainable advancements in the ability of local governments to mainstream climate considerations into infrastructure-related decisions.

Detailed information on each of the pilot cities' activities follows.

Peru

Piura

In FY14, CCRD conducted four visits to Piura, Peru, to guide CRIS activities with the Municipality of Piura. The team supported the development and signing of an MOU between USAID/Peru and the Municipality of Piura to formally establish a partnership under CRIS, and held subsequent meetings to establish a technical group on climate change.

Working with the technical group, the CRIS team developed, tested, and trained stakeholders on a Vulnerability Assessment Screening Tool, used by the Municipality to evaluate climate impacts on 47 planned infrastructure projects across four sectors, and an Adaptation Options Screening Tool, used by the Municipality to develop adaptation implementation portfolios for transportation, water and sanitation, and solid waste sectors.

In addition, CRIS delivered a Climate Information Database to the Municipality that provides summaries and technical information on current and projected future climate in the area, tailored specifically for city-level decision-making. At the request of the Municipality, the CRIS team provided text to integrate climate change risk into Piura's Urban Development Plan, which establishes the policy framework through which public infrastructure projects will be required to consider climate vulnerability in the development process.

Finally, working with the Municipality, an Action Plan for Piura to continue work on climate resilient infrastructures services was finalized, describing concrete activities to address climate risks, mainstream

CRIS tools into municipal decision-making, share successes and lessons learned, and pursue longer-term actions and partnerships. For example, the CRIS Piura local coordinator supported the Municipality in applying for funding through the Rockefeller Foundation's 100 Cities Campaign.

Trujillo

In FY14, CCRD and USAID finalized a buy-in from the USAID/Peru mission to implement a CRIS pilot in Trujillo, Peru. The CRIS team completed a work plan and supported the development and signing of an MOU between USAID/Peru and the Municipality of Trujillo to formally establish a partnership under CRIS. During FY14, CCRD conducted four working visits to Trujillo.

The team held a one-day scoping workshop on the CRD Framework, introducing participants to climate change and helping identify the critical climate impacts threatening Trujillo's development goals. Leveraging experience from the work in Piura, the team also developed one-day training on identification and selection of adaptation options for Fast-Track Implementation. Municipal officials and the local water authority identified a number of short-term potential adaptation options to reduce the vulnerability of Trujillo's infrastructure. The CRIS team also trained municipal officials to apply the technical information from a previous vulnerability assessment, funded by the Inter-American Development Bank, to inform practical decision-making through using the Vulnerability Assessment Screening Tool.

Finally, working with the Municipality, an Action Plan was finalized identifying key activities to continue work beyond the CRIS program, including ways that other initiatives, donors, and organizations can efficiently build on CRIS's work.

Dominican Republic

In FY14, CCRD conducted six visits to Santo Domingo, Dominican Republic (Ayuntamiento del Distrito Nacional, or ADN) and held two virtual meetings to support implementation of a work plan guiding CRIS activities with ADN.

The team first supported the development and signing of an MOU between USAID/Dominican Republic and ADN to establish a partnership on climate resilient infrastructure services. The CRIS team also facilitated the creation of a multiagency Working Group, consisting of representatives from ADN, the local water authority, civil society groups, and key national government departments, focused on establishing a stakeholder-driven approach for sustainable engagement on climate resilient infrastructure services in Santo Domingo.

The team developed several technical products to support implementation of the CRD Framework in Santo Domingo, including: a Sensitivity Matrix for identifying Ward 3 sanitation infrastructure vulnerabilities, adaptation considerations, and adaptation options; technical presentations on climate information and vulnerability assessment; a process for vulnerability assessment consistent with the Assess stage of the CRD Framework; and an approach for the identification, evaluation, and prioritization of potential adaptation options consistent with the Design stage of the CRD Framework. To support these technical products, the CRIS team collected information on existing assessments, vulnerabilities, and sensitive infrastructure; identified historical and future climate changes; and trained Working Group staff in using these approaches and tools.

A draft Action Plan for the National District of Santo Domingo was developed that lays out next steps in advancing climate resilience. The plan features concrete activities to address climate risks, mainstream CRIS tools into municipal decision-making, share successes and lessons learned, and pursue longer-term actions and partnerships.

Mozambique

In FY14, the CRIS team finalized a work plan with the Municipality of Nacala-Porto and supported the development and signing of an MOU between USAID/Mozambique and the Municipality of Nacala-Porto to formally establish a partnership on climate resilient infrastructure services. Three working visits to Nacala-Porto, Mozambique were conducted during FY14.

The team led a Training-of-Trainers (TOT) for municipal staff with presentations and small group exercises on the CRD Development Framework, helping to develop a group of local experts to further climate-resilient development activities within Nacala-Porto. In coordination with the TOT participants, the team also led an Awareness-Raising Workshop on climate-resilient development and infrastructure-related decision-making with stakeholders from the Municipality, regional government, and local NGOs.

In addition, the CRIS team developed a draft project-level vulnerability and adaptation screening tool to help the municipality screen for vulnerabilities and identify short- and long-term adaptation options. The tool was tested and refined based on sessions with key stakeholders, including from the municipality, INGC, and local NGOs.

Throughout the year, members of the team coordinated with the related USAID/Mozambique Coastal Community Adaptation Program (CCAP) to ensure compatibility and mutual support. The team also worked with UN-Habitat, National Institute of Disaster Management (INGC), and other local institutions to ensure appropriate sharing of programmatic information.

Finally, the CRIS team's local experts and coordinator supported the Municipality of Nacala-Porto in developing an application for funding through the Rockefeller Foundation's 100 Cities Campaign.

Task 3.4.3 Fast Track Implementation Small Grants Program

CCRD supported implementation and technical monitoring of small grants under the CRIS small grants program in FY14. Key accomplishments from the CRIS round 1 solicitation included the following:

- Yayasan Solo Kota Kita, in Indonesia, developed an infrastructure inventory and vulnerability assessment of Manado, Indonesia, and worked with municipal officials to develop a capacity building program that will be implemented in the Municipality.
- TERI developed an extensive infrastructure inventory and database management system for two coastal cities in India. They extended this work to develop a vulnerability assessment approach consistent with USAID's CRD Framework but tailored to a local Indian municipal context.
- IDDI, in Santo Domingo, undertook a needs assessment of the district government and implemented a number of local community workshops focused on increasing awareness of climate resilience and urban infrastructure concerns in the city.

CCRD also released a CRIS round 2 grant solicitation and awarded funding to CEDEPAS, which will support pilot activities in Piura, Peru. The grantee has successfully begun implementation.

Peer Learning Activities

The primary peer learning activity in FY14 was the CRIS Regional Climate Leadership Academy workshop, which brought together eight cities in Latin America and the Caribbean—including the CRIS pilot cities of Piura, Trujillo, and the National District of Santo Domingo—to share best practices and lessons learned on climate resilience of municipal infrastructure services. Approximately 50 individuals attended, including representatives of participating city teams, resource team members, USAID mission representatives, and CRIS team members. Participation of one city in this event was supported by the Inter-American Development Bank (IDB).

In addition, CCRD partner ICF facilitated a panel discussion at the ICLEI Resilient Cities Congress, in Bonn, Germany. The panel focused on city-level approaches to vulnerability assessment and urban infrastructure and included representatives of the CRIS program, the IDB Emerging and Sustainable Cities Initiative, and officials from municipalities participating in each program.

During FY14, the CRIS team conceptualized, developed, and tested a CRIS game investigating the trade-offs between near-term, "fast-track" and long-term adaptation options for infrastructure. The resulting game was rolled out and played in both Macedonia and Peru (Piura and Trujillo). Upon further testing and refining, the game will be available for broader dissemination by USAID.

Communications Products and Outreach Activities

During FY14, CRIS developed and published an article in the November/December 2013 issue of USAID's *FrontLines* magazine, highlighting the programs approach and plans for working with low-lying cities in Latin America/Caribbean and Africa to plan and implement climate risk management strategies. The article is available at: http://www.usaid.gov/news-information/frontlines/depleting-resources/double-trouble-tackling-urban-infrastructure-and.

CRIS also developed two, two-page communications documents – one summarizing the CRIS program and another focusing on CRIS in Nacala-Porto, Mozambique. In addition, the team local and national media, such as web postings, newspaper, and television coverage, showcasing CRIS activities in each pilot city.

TASK 3.4.5 PROVIDE INFORMATION AND TECHNICAL RESOURCES TO USAID STAFF

During FY14, the CRIS program continued to collaborate with USAID Mission staff located in the countries in which CRIS is conducting pilots. The team worked with USAID's GCC office to plan and implement the Infrastructure and Adaptation Session at the 2013 Infrastructure Workshop, and also designed and facilitated a session at the USAID training on climate change and economics in May 2014.

TASK 3.4.7 CASCADIA VIETNAM PILOT

In FY14, CCRD partner Cascadia Consulting Group continued evaluation of the pilot release of their Climate Impacts Decision Support Tool (CIMPACT-DST) in Hue, Vietnam, and successfully completed the customization, introduction, and deployment of the national-level tool with partner organizations in Hanoi, Vietnam. During the reporting period, the team conducted five visits to Vietnam. Major accomplishments from those visits include: In that time, the Hue Planning Institute in Thua Thien-Hue Province deployed the CIMPACT-DST tool, including the application of the tool to inform development of four climate-resilient urban master plans in the province.

Official provincial approval and support for continued customization, use, and training of the pilot CIMPACT-DST by the Thua Thien-Hue Provincial People's Committee.

Full customization of a national-level CIMPACT-DST that includes climate impacts and guidance information applicable to all 63 provinces of the country.

In-depth national CIMPACT-DST user trainings for over 70 personnel at the Vietnam Institute for Urban-Rural Planning, the Vietnam Institute of Meteorology, Hydrology, and Environment (IMHEN), and in Ba Ria-Vung Tau and Can Tho provinces.

A national tool dissemination workshop that included 146 participants from local and national universities, professional organizations, government agencies, international funding agencies, research institutions, and private firms. Workshop activities included formal tool training, case study examples, and a discussion section. Participants were provided with the national-level CIMPACT-DST in a USB thumb-drive.

A national-level CIMPACT-DST administrator training to 14 designated personnel from Vietnam Institute for Urban-Rural Planning (VIUP), Thua Thien-Hue, Ba Ria-Vung Tau, and Can Tho provinces. Training participants were granted full authorization to manage and update the tool.

ANNEX I. CCRD PERFORMANCE INDICATORS AND ACHIEVEMENTS

During FY 2014-Q4, implementation activities supported all 11 performance indicators specified in the CCRD Performance Management Plan. Below is a summary of CCRD performance indicator achievements, followed by a summary table.

Indicator #1: Number of people with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance (mandatory for Adaptation funding). This indicator is the most stringently measured under CCRD. Measuring adaptive capacity requires an initial baseline assessment of the targeted capacity(ies) and a post-intervention assessment. Due to the need for post-intervention assessment and follow-up, some interventions are not reported until a later reporting period.

(1) University of Colorado workshop "Production, access, and use of knowledge for climate adaptation in Longido and Monduli districts, Tanzania". Participants are now better able to consider options for accessing and using new knowledge or different kinds of knowledge (indigenous and scientific) for adaptation decision making. These trainings represent the first step in building capacity through sharing knowledge (65 men and 10 women)

Indicator #2: Number of stakeholders receiving training in climate change supported by USG assistance (Person-hours of training completed in climate change supported by USG assistance). Training is defined as a learning activity involving 1) a setting intended for teaching or transferring knowledge, skills, or attitudes; 2) formally designated instructors or lead persons; 3) a defined curriculum, learning objectives, and outcomes. Meetings or other efforts that could have educational value but do not have a defined curriculum or objectives are not considered training.

Support for indicator #2 resulted from six workshops/trainings:

(1) Yayasan Kota Kita capacity building workshop (Sept. 23 to 24th) in UNSRAT Manado. At the workshop the Manado Climate Change Vulnerability assessment was presented and support was given to the prepation of the city government's development agenda and the implementation of its resilience plan (33 people, 17 men, 16 women, 528 hours of training, 272 hours of training for men, 256 hours of training for women)

(2) Red Cross Red Crescent stakeholder workshop in Lusaka introducing participants to the uncertainties of climate projects and human responses, and explored how to plan under uncertainty (53 people, 34 men, 19 women, 424 hours of training, 272 hours of training for men, 152 hours of training for women)

(3) University of Colorado workshop "Production, access, and use of knowledge for climate adaptation in Longido and Monduli districts, Tanzania". Participants are now better able to

consider options for accessing and using new knowledge or different kinds of knowledge (indigenous and scientific) for adaptation decision making (75 people, 65 men, 10 women, 150 hours of training, 130 hours of training for men, 20 hours of training for women)

(4) University of North Carolina training on diagnosing the drinking water system in coastal cities to synergistic climate hazards at the WEDC Conference in Hanoi, Vietnam (16 people, 16 men, 0 women, 24 hours of training, 24 hours of training for men, 0 hours of training for women)

(5) The Piura-Trujillo Peer Learning and Training Event provided training on the practical realities of implementing adaptation options and the identification and pursuit of funding opportunities. The participants also explored how the municipalities could work together to support continued work on climate resilience after the CRIS program ends. (45 people, 27 men, 18 women, 148 hours of training, 88 hours of training for men, 60 hours of training for women)

(6) The Advanced Adaptation Training for MKM conducted by Glen Anderson and Charlotte Mack. (21 people, 14 men, 7 women, 525 hours of training, 350 hours of training for men, 175 hours for training for women).

Indicator #3: Number of laws, policies, strategies, plans, agreements, or regulations addressing climate change officially proposed, adopted, or implemented as a result of USG assistance.

(1) University of Michigan (small grant): The CCRD research process has motivated to FES to pursue several new (*Three*) strategic directions with its CSA activities, including the expansion of the research activities and treatment into two new states in India.

(2) *One* Memorandum of Understanding (MOU) signed with CRIS pilot city Nacala-Porto, Mozambique, which formally recognizes the partnership between USAID/Mozambique and the municipality of Nacala-Porto. The MOU was signed by Tim Born of USAID/Mozambique and Rui Chong Saw, President of the Municipality of Nacala-Porto on April 25th, 2014.

Indicator #4: Amount of investment leveraged in U.S. dollars from private and public sources, for climate change as a result of USG assistance.

CCRD benefitted from the financial contributions of numerous public and private organizations. Not all organizations providing leverage have been forthcoming in sharing cost information. In those instances, an estimate of the value of leverage is provided based on CCRD's experience in convening similar events such as international conferences and workshops.

Foundation for Ecological Studies (FES) (**$20,000**)

(1) Cost share contribution for the CCRD University of Michigan small-grant

Indicator #5: Number of institutions with improved capacity to address climate change issues as a result of USG assistance. Measuring improved institutional capacity requires an initial baseline assessment of the targeted capacity(ies) and a post-intervention assessment. Due to the need for post-intervention assessment and follow-up, some interventions are not reported until a later reporting period.

Support for indicator #5 resulted from three workshops/trainings:

(1) University of Michigan small grant has improved the capacity of the Foundation for Ecological Studies and University itself to research and implement activities that target climate change resilience and adaptation.

(2) Red Cross Red Crescent Climate Centre basic training in the capabilities and uncertainties associated with both climate science and social scientific assessment of vulnerability. Participants of the workshop worked together on how to identify urban climate stresses. Capacity was assessed in end-of-session oral readouts from participants.

(3) University of North Carolina increased the capacity of nine water utilities in Vietnam and the Philippines on diagnosing the drinking water system in coastal cities to synergistic climate hazards at the WEDC Conference in Hanoi, Vietnam.

Indicator #6: Number of days of USG funded technical assistance (TA) in climate change provided to counterparts or stakeholders. Includes the transfer of knowledge and/or expertise by way of staff, skills training, research work and financing to support quality of program implementation and impact, support administration, management, representation, publicity, policy development and capacity building. Generally, workshops/meetings that are not counted under Indicator #2 (climate change training) are included here.

(1) 49 days of TA from the University of Michigan for research set-up technical assistance that the to the Foundation for Ecological Studies, as well as enumerator training and a field visit by the University team

(2) 45 days of TA from the University of Colorado for research and field work in the Longido and Monduli districts of Tanzania.

(3) *Two* days of TA from Mike Savonis and Cassandra Snow for working meetings with the Santo Domingo CRIS Working Group to discuss specific infrastructure impacts possible because of climate change, possible adaptation strategies, means to evaluate adaptation strategies, and action plan tasks for the Working Group to continue work to increase their resilience.

(4) *Two* day of TA from Molly Hellmuth and Cameron Wobus for working sessions with local NGOs in the Municipality of Nacala-Porto.

(5) *Two* days of TA from Antonio Queface and Momade Amad for working with the Municipality of Nacala-Porto on the Rockefeller 100 Resilient Cities proposal.

(6) *Two* days of TA from Chris Evans for working meetings with staff and managers of the Municipality of Piura, Peru to complete Action Plan, deliver CRIS tools, and close-out pilot activities.

(7) *Two* days of TA from Judsen Bruzgul for working meetings with staff and managers of the Municipality of Trujillo, Peru to complete Action Plan, deliver CRIS tools, close-out pilot activities.

(8) *One* day of TA from Maria Sofia Dunin Borkowski for working with the Municipality of Piura on the Rockefeller 100 Resilient Cities proposal.

Indicator #7: Number of climate adaptation tools, technologies and methodologies developed, tested, and/or adopted as a result of USG assistance.

(1) *Ten* tools developed by the University of Michigan including includes the household survey instrument, village instrument and overall research design methodology, as well as the electronic programming for these instruments and the M&E data collection tools. This also included the English, Hindi and Telegu versions for each of the instruments.

(2) *One* tool developed by the University of Colorado: methodological package, including focus group protocol, interview protocol, and structured/unstructured ethnographic protocols.

(3) *One* tool entitled the Climate Information Database for Piura that provides information about historical and potential future climate conditions in the local area and region in a format that is readily-accessible for municipal decision-makers in Piura. The database contains several climate summaries for key climate stressors relevant to Piura, with links to underlying climate data from regional, national government, and international sources. Existing geographic and city planning maps and spatial information are also contained within the database.

(4) *Three* - Developed a Matrix of Potential Climate Change Impacts, Adaptation Considerations, and Adaptation Options for Ward 3 Sanitation Infrastructure in Santo Domingo, used to help the Santo Domingo CRIS Working Group identify vulnerabilities and adaptation strategies.

(5) *One* – Developed the Fast-Track Implementation methodology, an approach for accelerating aspects of the CRD process under certain conditions.

(6) *One* - Developed and tested an interactive game to help players investigate and understand the trade-offs between near-term, "fast-track" and long-term, hard adaptation options for infrastructure.

Indicator #8: Number of climate vulnerability assessments conducted.

(1) *One* – Yayasan Kota Kita Surakarta Small grant completed the Manado Climate Change Vulnerability Assessment.

(2) *One* - Under the Santo Domingo CRIS pilot, the Working Group conducted a vulnerability assessment of sanitation infrastructure in Ward 3 to the climate stressors of extreme heat, flooding, drought, sea level rise, and storm surge. The existing and proposed sanitation infrastructure evaluated includes the existing La Cienaga wastewater treatment plan, the planned La Zurza II wastewater treatment plant, the planned Alma Mater Emissary drainage system, and the pumping stations and access roads associated with each of these facilities.

(3) *Two* – Under the Nacala-Porto CRIS pilot, a group of representatives from the municipality, INGC, and local NGOs conducted a vulnerability assessment for two projects that are in the municipal pipeline using the VA screening and adaptation assessment tool.

Indicator #9: Number of people registering to participate in adaptation-related communities of practice.

The Climate Services Partnership established 239 new contacts. For a list of contact names and emails please refer to Cathy Vaughan at IRI cvaughan@iri.columbia.edu.

Indicator #10: Number of unique visitors logging on to/accessing the adaptation-related websites supported with USG assistance.

- Climate Services Partnership: 1,968 (Q3) and 2,614 (Q4)
- IRAP: 494 visitors (Q4)
- High Mountain Adaptation Partnership: 1,057 (Q3) and 1,179 (Q4)
- Central America Climate Resilient Agriculture: 23 (Q3)
- Adaptation Partnership: 782 (Q3) and 920 (Q4)

Indicator #11: Number of adaptation financing proposals benefitting from USG assistance.

(1) *Three* – The Foundation for Ecological Security through the small grant with the University of Michigan has used the information gathered under CCRD to inform funding proposals regarding sustainable community forestry projects in India as well as apply tfor two additional research projects related to climate smart agriculture.

(2) *Two* - Applications to the Rockefeller 100 Resilient Cities Challenge by the Municipality of Piura and the Municipality of Nacala-Porto (not yet awarded but submitted).

CCRD Performance Indicators and Achievements

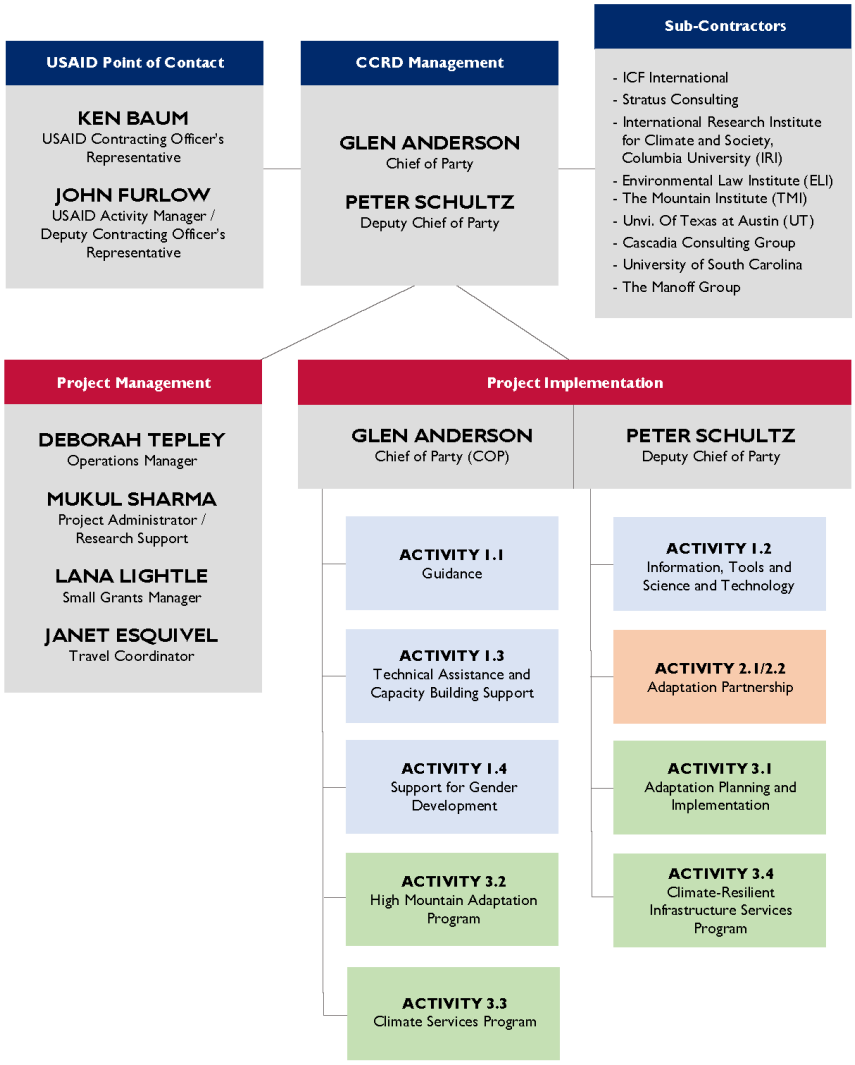
#	Indicator	Unit	FY 2012 Actuals	FY 2013 Actuals	Achievement – FY 2014						CCRD Cumulative FY 2012 – FY 2014
					FY 2014 Targets	QTR 1	QTR 2	QTR 3	QTR 4	FY 2014 Total	
1	Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance (mandatory for Adaptation funding) **MEN**	Number	48	4	70	0	35	13	65	**113**	**165**
	Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance (mandatory for Adaptation funding) **WOMEN**	Number	9	0	30	3	17	4	15	**39**	**48**
2	Number of people receiving training in climate change supported by USG assistance (Person-hours of training completed in climate change supported by USG assistance) **MEN**	Number/ Hours	376/ 7,913	1,665/ 36,585.50	600/ 10,000	626/ 8,600	267/ 1,716	317/ 4,090	173/ 1,136	**1,383/ 15,542**	**3,424/ 60,040.50**

#	Indicator	Unit	FY 2012 Actuals	FY 2013 Actuals	Achievement – FY 2014						CCRD Cumulative FY 2012 – FY 2014
					FY 2014 Targets	QTR 1	QTR 2	QTR 3	QTR 4	FY 2014 Total	
	Number of people receiving training in climate change supported by USG assistance (Person-hours of training completed in climate change supported by USG assistance) **WOMEN**	Number/ Hours	148/ 2,736	890/ 21,311	200/ 5,000	471/ 6,029	176/ 914	214/ 3,853	70/ 663	**931/ 11,459**	**1,969/ 35,506**
3	Number of laws, policies, strategies, plans, agreements, or regulations addressing climate change officially proposed, adopted, or implemented as a result of USG assistance	Number		11	12	0	4	**0**	4	**8**	**19**
4	Amount of investment leveraged in US dollars from private and public sources, for climate change as a result of USG assistance	Dollars	$440,000	$804,425	$600,000	$108,238	$14,150	$42,000	$20,000	**$184,388**	**$1,428,813**
5	Number of institutions with improved capacity to address climate change issues as a result of USG assistance	Number	272	386	20	52	28	13	11	**104**	**762**

#	Indicator	Unit	FY 2012 Actuals	FY 2013 Actuals	Achievement – FY 2014						CCRD Cumulative FY 2012 – FY 2014
					FY 2014 Targets	QTR 1	QTR 2	QTR 3	QTR 4	FY 2014 Total	
6	Number of days of USG-funded technical assistance in climate change provided to counterparts or stakeholders	Days	171	141.50	160	46	96	78	105	**325**	**637.50**
7	Number of climate adaptation tools, technologies and methodologies developed, tested, and/or adopted as a result of USG assistance	Number	6	19	20	19	15	5	17	**56**	**81**
8	Number of climate vulnerability assessments conducted	Number	5	1	N/A	0	3	5	4	**12**	**18**
9	Number of people registering to participate in adaptation-related Communities of Practice	Number	80	349	N/A	391	7	7	239	**644**	**1,073**
10	Number of people logging on to/ accessing the adaptation-related websites supported with USG assistance	Number	7,687	9,908	N/A	9,627	6,080	3,830	5,207	**24,744**	**42,339**
11	Number of adaptation financing proposals benefitting from USG assistance	Number		**3**	N/A	0	0	0	5	**5**	**8**

ANNEX II. ORG CHART

Exhibit 2. Organization Chart



PROJECT MANAGMENT ---------- GLEN ANDERSON

WORK PLAN ---------- G. ANDERSON / KEN BAUM
PMP ---------- G. ANDERSON / K. BAUM
STRATEGIC PLANNING/SAC ---------- G. ANDERSON / JOHN FURLOW
REPORTING ---------- DEBORAH TEPLEY / K.BAUM
COMMUNICATIONS, OUTREACH AND COMMUNITIES OF PRACTICE ---------- MICHAEL COTE / JENNY FRANKEL-REED
POC FOR SUBCONTRACTOR/CONSULTANTS ---------- D. TEPLEY / K.BAUM
SMALL GRANTS ---------- LANA LIGHTLE / K.BAUM

PROJECT IMPLEMENTATION ---------- GLEN ANDERSON / PETER SCHULTZ

1.1 ACTIVITY: GUIDANCE ---------- G. ANDERSON / J. FRANKEL-REED

1.1 GUIDANCE, BRIEFS AND ANNEXES ---------- YOON KIM / J. FRANKEL-REED

CLIMATE RESILIENT DEVELOPMENT FRAMEWORK ---------- Y. KIM / J. FRANKEL-REED & JONATHAN COOK
DIAGNOSIS ANNEX ---------- P. SCHULTZ / J. FRANKEL-REED & J. COOK
COASTAL AND MARINE ANNEX ---------- JASON VOGEL / J. COOK
DIFFERENTIATED VULNERABILITY ANNEX ---------- ED CARR / ANDRE MERSHON
GOVERNANCE ANNEX ---------- JESSICAL TROELL / J. COOK
CLIMATE INFORMATION GUIDE ---------- P. SCHULTZ / J. FRANKEL-REED
NEW DIRECTIONS IN PILOTS AND RESEARCH ---------- P. SCHULTZ / J. FURLOW

1.2 ACTIVITY: INFORMATION, TOOLS AND SCI AND TECH ---------- P. SCHULTZ / J. FRANKEL-REED

UNDP ADAPTATION LEARNING MECHANISM WEBSITE---------- M. COTE / J. FRANKEL-REED

1.3 ACTIVITY: PROVIDE CAPACITY BUILDING SUPPORT ON MAINSTREAMING ---------- G. ANDERSON

SUPPORT DEVELOPMENT OF USAID'S FEDERAL AGENCY CLIMATE CHANGE PLAN ---------- MICHELLE COLLEY / NORA FERM
SUPPORT FOR USAID INTEGRATION PILOT IN KAZAKHSTAN ---------- G. ANDERSON / J. FRANKEL-REED
SUPPORT FOR CLIMATE RESILIENT LOW EMISSIONS DEVELOPMENT STRATEGIES ---------- CHARLOTTE MACK / J. FURLOW

1.4 SUPPORT FOR GENDER DEVELOPMENT

TECHNICAL ASSISTANCE TO THE OFFICE OF GENDER EQUALITY AND WOMEN'S EMPOWERMENT ------ E. CARR / A. MERSHON

2.1/2.2 ACTIVITY: ADAPTATION PARTNERSHIP ---------- P. SCHULTZ

2.1 ADAPTATION PARTNERSHIP ---------- ROSAMUND MISCHE JOHN

CONDUCT URBAN ADAPTATION PARTNERSHIP WORKSHOP ---------- C. MACK / N. FERM
CONDUCT CLIMATE AND SECURITY ADAPTATION PARTNERSHIP WORKSHOP ---------- MUKUL SHARMA / J. FURLOW
CONDUCT TRANING ON MAINSTREAMING FOR MARINE PROTECTED AREA MANAGERS ---------- Y. KIM / J. COOK

3.1 ACTIVITY: SUPPORT ADAPTATION PLANNING AND IMPLEMENTATION ---------- P. SCHULTZ

SUPPORT PREPARATION OF NATIONAL ADAPTATION PLANS (NAPS) ---------- Y. KIM
DEVELOP AND PILOT FAST TRACK IMPLEMENTATION CONCEPT ---------- P. SCHULTZ

J. FURLOW
J.COOK

3.2 ACTIVITY: HIGH MOUNTAIN ADAPTATION PROGRAM---------- G. ANDERSON

3.2 HIGH MOUNTAIN AND ADAPTATION PROGRAM ---------- M. COTE

DEVELOP THE HIGH MOUNTAIN ADAPTATION PROGRAM CoP SECRETARIAT ---------- JOHN HARLIN
IMPLEMENT COMMUNITY OF PRACTICE PILOT PROJECTS AND RESEARCH ---------- TMI / UT

J. COOK

3.3 ACTIVITY: CLIMATE SERVICES PARTNERSHIP ---------- G. ANDERSON

3.3 CLIMATE SERVICES ---------- FERNANDA ZERMOGLIO

COORDINATE ACTIVITIES OF THE CLIMATE SERVICES PARTNERSHIP ---------- STEVE ZEBIAK
COMPILE AND DISSEMINATE CURRENT CLIMATE SERVICES KNOWLEDGE ---------- IRI STAFF
CONDUCT CASE STUDIES AND ASSESSMENTS OF CLIMATE SERVICES ---------- IRI STAFF
ECONOMIC VALUATION OF CLIMATE SERVICES ---------- G. ANDERSON
PILOT NATIONAL-LEVEL CLIMATE SERVICES ANALYSIS ---------- S. ZEBIAK/IRI
DEVELOP CLIMATE SERVICES PRODUCT FOR AGRICULTURAL SECTOR ---------- IRI STAFF
CLIMATE SERVICES TECHNICAL BACKSTOPPING OF DEVELOPMENT PROGRAM ---------- S. ZEBIAK/IRI
INTERNATIONAL RESEARCH AND APPLICATIONS PROJECT ---------- LISA GODDARD/IRI

J. FURLOW

3.4 ACTIVITY: CLIMATE RESILIENT INFRASTRUCTURE SERVICES PROGRAM (CRIS)---------- P. SCHULTZ

PROVIDE CRIS SUPPORT TO PILOT CITIES TO ACCELERATE CLIMATE RISK MANANGMENT ---------- J. POTTER
DESIGN AND IMPLEMENT A SMALL GRANTS PROGRAM ---------- CHRIS EVANS / L. LIGHTLE
FACILITATE GLOBAL CITY-TO-CITY INFORMATION ---------- J. POTTER/ WENDY JAGLOM
PROVIDE INFORMATION AND TECHNICAL RESOURCES TO USAID STAFF ---------- J. POTTER
EVALUATE CRIS ACTIVITIES AND RECOMMEND NEXT STEPS ---------- J. POTTER

N. FERM

ANNEX III. SMALL GRANTS

Name-Number	Title	Type	Amount	Status
Adam French (University of California, Santa Cruz): CCRDCS0001	Integrated and Participatory Risk Management in Peru's Lake Paron Glacier Basin	Climber-Scientist Small Grants (Individual Grant)	$24,818	Active
Ulyana Nadia Horodyskyj (University of Colorado (UC) at Boulder): CCRDCS0002	Quantifying Supraglacial Lake Changes: Contributions to Glacial Ice Volume Loss and Runoff Inputs to Rivers in Nepal and Tibet	Climber-Scientist Small Grants (Individual Grant)	$31,527	Closed out
Shah Raees Khan (University of Manitoba): CCRDCS0003	Understanding Vulnerabilities to Environmental Hazards in Mountain Areas: A Case Study of Climate Change Analysis on Livelihoods in Northern Pakistan	Climber-Scientist Small Grants (Individual Grant)	$24,985	Cancelled
Laura Read (Tufts University): CCRDCS0004	Tres Cuencas Commonwealth	Climber-Scientist Small Grants (Individual Grant)	$25,962	Closeout process
Raúl Augusto Loayza Muro (Universidad Peruana Cayetano Herida): CCRDCS0005	Natural acid and metal leaching in Andean headwaters: an interdisciplinary approach to evaluate water quality and potential sources for remediation in a climate change context in the Cordillera Blanca (Peru)	Climber-Scientist Small Grants (Individual Grant)	$24,997.60	Closeout process
ATREE (India-Nepal): CCRDCS0006	Climate change in Kanchenjunga TCA: Vulnerabilities and adaptive capacities	Climber-Scientist Small Grants (Institutional Grant)	$93,700	Closeout process
The Research Foundation for the State University of New York (SUNY) (Mongolia-Altai): CCRDCS0007	Engaging Climber-Scientists and Indigenous Herders on Grazing and Climate Change Issues in the Altai Mountain Region of Mongolia	Climber-Scientist Small Grants (Institutional Grant)	$99,655	Closeout process
Resources Himalaya Foundation (Nepal): CCRDCS0008	Building Climate Change Resilience Capacity of Mountain People in Nepal	Climber-Scientist Small Grants (Institutional Grant)	$97,823.53	Closed out
Geo-Science Innovations (Nepal): CCRDCS0009	Investigation of the Seti River disaster (May 5, 2012) and assessment of past and future mountain hazards facing Pokhara, Nepal and upstream communities	Climber-Scientist Small Grants (Institutional Grant)	$100,000	Closed out
Institute of Environmental Engineering (Eidgenössische Technische Hochschule ETH), Zurich, Switzerland: CCRDCS0010	Including the Sherpa Factor in Water Resources Projections in the Nepalese Himalaya	Climber-Scientist Small Grants (Institutional Grant)	$99,590	Active
Stephanie Spray (Harvard University): CCRDCS0011	Snow River Film Project	Climber-Scientist Small Grants (Individual Grant)	$28,610	Active
Private Institute for Climate Change Research	Develop a mechanism for Climate Change Technology Transfer for staple	Costa Rica Small Grants (Institutional Grant)	$127,511.29	Closed out

Name-Number	Title	Type	Amount	Status
(ICC); part of the Guatemalan Sugar Association (Asociación de Azucareros de Guatemala - ASAZGUA) CCRDCR0001	crops within the Guatemalan Pacific slopes.			
Tropical Agricultural Research and Higher Education Center (CATIE) CCRDCR0002	Strengthening the resilience of cattle farms to climate variability and climate change in Honduras, Nicaragua and Costa Rica	Costa Rica Small Grants (Institutional Grant)	$171,570.83	Closed out
Pan American School of Agriculture, also known as Zamorano (university) CCRDCR0003	Building capacity for climate-resilient agriculture in the dry corridor of northern central America	Costa Rica Small Grants (Institutional Grant)	$159,362.50	Closed out
International Environmental Data Rescue Organization (IEDRO) : CCRDSS0001	West Africa Data Rescue and Digitization Facility	Sole Source Small Grants (Institutional Grants)	$106,321.75	Active
AGRHYMET Regional Center: CCRDSS0002	Improving Resilience to Climate Impacts in West Africa Through Improved Availability, Access and Use of Climate Information: Dialogue With User	Sole Source Small Grants (Institutional Grants)	$29,978.00	Close out process
Western Indian Ocean Marine Science Association (WIOMSA): CCRDSS0003	Training on Vulnerability Assessment, Scenario Planning and analyzing adaptation strategies - 2014 WIO Climate Capacity Building Program	Sole Source Small Grants (Institutional Grants)	$62,036.00	Close out process
The Mountain Institute (TMI): CCRDSS0004	The Everest Alliance-Cooperatively protecting and restoring the Mt. Everest ecosystem from villages to summit	Sole Source Small Grants (Institutional Grants)	$18,065.65	Close out process
Trustees of Columbia University in the City of New York: CCRDSS0005	Training on Vulnerability Assessment, Scenario Planning and analyzing adaptation strategies - 2014 WIO Climate Capacity Building Program	Sole Source Small Grants (Institutional Grants)	$49,348.00	Close out process
The Energy and Resources Institute (TERI): CCRDCRIS0001	Urban Infrastructure Inventory and Rapid Vulnerability Assessment for Resilience Planning in Two Coastal Cities in India	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	$136,630.91	Active
Yayasan Kota Kita Surakarta: CCRDCRIS0002	Vulnerability Assessment, Infrastructure Inventory, Resilience Planning and Capacity Building for the City of Manado, Indonesia	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	$108,874	Active
Yayasan Mercy Corps Indonesia (YMCI): CCRDCRIS0003	CRISPI Climate Resilient Infrastructure Services Program - Indonesia	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	$149,990	Retracted
Thailand Environment Institute (TEI): CCRDCRIS0004	Public-Private Partnerships for Climate Resilient Infrastructure: Barriers and Opportunities in the Phuket Tourism Sector	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	$122,852	Retracted
Instituto Dominicano de Desarrollo Integral (IDDI): CCRDCRIS0005	Increasing Resilience to Climate Change of Santo Domingo's Services Infrastructure	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	$146,673.98	Active
Western Kentucky University: CCRDACD0002	Tropical Andean Climate Change Adaptation and Ecosystem Services Monitoring, Cordillera Blanca, Peru	Academic Grants (Institutional Grants)	$100,000	Active
University of Colorado: CCRDACD0008	An on-line planning tool for climate change resiliency development support	Academic Grants (Institutional Grants)	$99,941	Active
RMIT University, Australia:	Decision-support toolkit: towards	Academic Grants	$99,828	Active

Name-Number	Title	Type	Amount	Status
CCRDACD0005	climate smart seaports in the Pacific Islands	(Institutional Grants)		
West Virginia University: CCRDACD0004	Climate Forecasting, Adaptation Backcasting: Promoting Resilient Adaptation in Malawi	Academic Grants (Institutional Grants)	$99,826	Active
University of Michigan - School of Natural Resources and Environment: CCRDACD0007	Water Demand Management for Improved Adaptation by Small Farmers in Semi-Arid India	Academic Grants (Institutional Grants)	$99,941	Active
Red Cross / Red Crescent Climate Centre: CCRDACD0003	From Vulnerability Assessments to Adaptive Action: A demand-driven approach to forecast-based decisions for development	Academic Grants (Institutional Grants)	$99,829	Active
University of North Carolina at Chapel Hill: CCRDACD0006	Diagnosing the vulnerability of drinking water infrastructure to synergistic climate related hazards in coastal cities	Academic Grants (Institutional Grants)	$99,995	Active
Pan American School of Agriculture "El Zamorano": CCRDACD0009	Water, Climate and Development Training program	Academic Grants (Institutional Grants)	$90,525	Active
University of Colorado Boulder: CCRDACD0001	Identifying Constraints to and Opportunities for Co-production of Climate Information for Improved Food Security among Agro-pastoral Populations in Tanzania	Academic Grants (Institutional Grants)	$50,625	Active
Nepal Development Research Institute (NDRI)-CCRDSCS0001	Strengthening Generation and Dissemination of Climate-Based Agro-Advisories for Smallholder Farmers in South Asia	Climate Services (Institutional Grants)	$149,585	Active
Science Foundation for Livelihoods and Development (SCIFODE)-CCRDSCS0002	Laying the Foundation for Establishing Networks Linking Farmers Across Africa and South Asia for Demand-driven Climate Services.	Climate Services (Institutional Grants)	$149,990	Active
University of Reading - CCRDSCS0003	Investigating the potential and opportunities for scaling up climate services for farmers in Africa	Climate Services (Institutional Grants)	$149,939	Active
North CEDEPAS-CCRSCRISII0001	"Strengthening the institutional framework for the validation and incorporation of FIT methodology in the Provincial Municipality of Piura	The Climate Resilient Infrastructure Services (CRIS) Program ROUND II (Institutional Grants)	$68,959.75	Active

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